Jan 77242

Access DB# _____

# SEARCH REQUEST FORM

RECEIVED

OCT - 4 2002

TECH CENTER (STIC)

**Scientific and Technical Information Center**

Requester's Full Name: Leigh Maier Examiner #: 77012 Date: 10-4-02

Art Unit: 1623 Phone Number 308-4525 Serial Number: 10/082,555

Mail Box and Bldg/Room Location: 7A03 Results Format Preferred (circle): PAPER DISK E-MAIL

8B19 (mailbox)

**If more than one search is submitted, please prioritize searches in order of need.**

**********

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Bib sheet attached

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please search for compositions comprising deacetylated xanthan gum using oil "drilling fluids" or "drilling muds" as a search term, but not limited to that.

Thanks,
Leigh

Jan Delaval
Reference Librarian
Biotechnology & Chemical Library
CM1 1E07 - 703-308-4498
jan.delaval@uspto.gov

Please return claims with search.

**********

**STAFF USE ONLY**

Searcher: Jan

Searcher Phone #: 4498

Searcher Location: _____

Date Searcher Picked Up: 10/10/02

Date Completed: 10/10/02

Searcher Prep & Review Time: _____

Clerical Prep Time: 05

Online Time: ~90

**Type of Search**

NA Sequence (#) _____

AA Sequence (#) _____

Structure (#) _____

Bibliographic ✓

Litigation _____

Fulltext _____

Patent Family _____

Other _____

**Vendors and cost where applicable**

STN ✓

Dialog _____

Questel/Orbit _____

Dr.Link _____

Lexis/Nexis _____

Sequence Systems _____

WWW/Internet _____

Other (specify) _____

PTO-1590 (8-01)

```
=> fil reg
FILE 'REGISTRY' ENTERED AT 08:21:12 ON 10 OCT 2002
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2002 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:    9 OCT 2002  HIGHEST RN 460312-12-3
DICTIONARY FILE UPDATES:   9 OCT 2002  HIGHEST RN 460312-12-3

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

Crossover limits have been increased.  See HELP CROSSOVER for details.

Experimental and calculated property data are now available.  See HELP
PROPERTIES for more information.  See STNote 27, Searching Properties
in the CAS Registry File, for complete details:
http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf

=> d ide can l1

L1   ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2002 ACS
RN   11138-66-2  REGISTRY
CN   Xanthan gum (9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   Actigum CX 9
CN   ADM 40
CN   B 1459
CN   Biopolymer 9702
CN   Biopolymer XB 23
CN   Biozan R
CN   Bisfect XA 200
CN   Bistop
CN   Chemicogel
CN   Echogum
CN   Echogum F
CN   Echogum RD
CN   Echogum SF
CN   Echogum T
CN   Ekogum
CN   Ekogum ketorol
CN   Enorflo X
CN   Flocon 1035
CN   Flocon 4800
CN   Flocon 4800C
CN   Flodrill S
CN   Galaxy XB
CN   Gums, xanthomonas
CN   Idvis
CN   Jungbunzlauer ST
CN   K 5C151
CN   K 9C57
CN   Kelco BT
CN   Kelflo
CN   Keltrol
CN   Keltrol CG
CN   Keltrol F
CN   Keltrol RD
```

CN Keltrol SF
CN Keltrol T
CN Keltrol TF
CN Keltrol TF 1000
CN Kelzan
CN Kelzan 140X
CN Kelzan AR
CN Kelzan ASX
CN Kelzan D
CN Kelzan F
CN Kelzan M
CN Kelzan MF
CN Kelzan S
CN Kelzan SS 4000
CN Kelzan T
CN Kelzan XC
CN Kelzan XCD
ADDITIONAL NAMES NOT AVAILABLE IN THIS FORMAT - Use FCN, FIDE, or ALL for DISPLAY
DR 12673-42-6, 12771-06-1, 9088-32-8, 54511-23-8, 56592-13-3, 98112-77-7, 51811-95-1, 37189-49-4, 37279-85-9, 37332-19-7, 37383-52-1, 80450-59-5, 85568-76-9, 82600-55-3, 39393-27-6, 39444-54-7
MF Unspecified
CI PMS, COM, MAN
PCT Manual registration, Polyester, Polyester formed
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMLIST, CIN, CSCHEM, DDFU, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PIRA, PROMT, TOXCENTER, TULSA, USPAT2, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
6852 REFERENCES IN FILE CA (1962 TO DATE)
236 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
6886 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 137:222159

REFERENCE 2: 137:222095

REFERENCE 3: 137:222032

REFERENCE 4: 137:221941

REFERENCE 5: 137:221810

REFERENCE 6: 137:221757

REFERENCE 7: 137:218774

REFERENCE 8: 137:216182

REFERENCE 9: 137:212293

REFERENCE 10: 137:208425

=> d his

```
     (FILE 'HOME' ENTERED AT 07:45:35 ON 10 OCT 2002)
               SET COST OFF

     FILE 'REGISTRY' ENTERED AT 07:46:08 ON 10 OCT 2002
               E XANTHAN GUM/CN
L1           1 S E3

     FILE 'HCAPLUS' ENTERED AT 07:46:23 ON 10 OCT 2002
L2        6898 S L1
L3          20 S L1 (L) DEACET?
L4          20 S L3 AND L2
L5        6651 S XANTHAN(A)GUM
               E DEACETYLATION/CT
               E E3+ALL
L6        1069 S E5
               E E4+ALL
L7         597 S E4
               E E9+ALL
L8         987 S E4,E3+NT
               E E10+ALL
               E E8+ALL
L9        1466 S E2,E4
L10         14 S L2,L5 AND L6-L9
L11         43 S L2,L5  AND DEACET?
L12         13 S L2,L5  AND DEACYL?
L13         57 S L4,L10-L12 AND L2-L12
               E LANGLOIS B/AU
L14         67 S E3-E5,E11-E13
L15          1 S L14 AND L13
L16          1 S L14 AND L2,L5
               E RHODIA/PA,CS
L17       1137 S E3,E4
L18         32 S L2,L5 AND L17
L19          1 S L13 AND L15,L16,L18
L20         31 S L18 NOT L19
               E DRILLING FLUID/CT
               E E4+ALL
L21       7554 S E2,E3,E1+NT
               E E8+ALL
L22       1151 S E2,E1+NT
               E E7+ALL
L23       1561 S E3+NT
               E DRILLING FLUID/CT
               E E4+ALL
               E E9+ALL
L24       2374 S E4,E3+NT
               E E13+ALL
L25       5086 S E4,E3+NT
               E E12+ALL
L26       2374 S E4,E3+NT
               E E2+ALL
L27      12718 S E3,E2+NT
               E DRILLING FLUIDS/CT
L28        402 S E8
               E E3+ALL
               E E11+ALL
L29        388 S E1
L30        276 S L2,L5 AND L21-L29
L31          3 S L30 AND L20
L32          1 S L30 AND L13
L33          4 S L31,L32
L34          1 S L33 AND LANGLOIS ?/AU
L35         56 S L13 NOT L34
```

```
L36           0 S L35 AND L30
L37           1 S L35 AND FUEL?/SC,SX
L38           2 S L34,L37
L39          55 S L35 NOT L38
L40          55 S L39 AND XANTHAN
L41          47 S L40 AND GUM
L42           8 S L40 NOT L41
L43          55 S L39-L42
L44          49 S L43 AND (PD<=20000114 OR PRD<=20000114 OR AD<=20000114)
                SEL DN AN 3 4 14 25 30 31 35 44 45 46 47
L45          11 S L44 AND E1-E33
L46          13 S L38,L45
L47          44 S L43 NOT L46
                SEL DN AN 5 6 11 16 17 18 19 20 25 26 28 31 32 33 34 35 38 39 4
L48          21 S L47 AND E34-E96
L49          34 S L46,L48
L50           9 S L2,L5 AND (DE ACET? OR DE ACYL? OR NONACET? OR NONACYL? OR NO
L51           4 S L50 AND L49
L52           5 S L50 NOT L51
L53           4 S L52 NOT SUBSTRATE/TI
L54          38 S L49,L51,L53
L55        8536 S L2,L5 OR XANTHAN
L56           3 S L55 AND ?PENTAMER?
L57          40 S L54,L56
L58          40 S L57 AND L2-L57
L59           9 S L58 AND ?ACYL?
L60          36 S L58 AND ?ACETYL?
L61          40 S L58-L60
L62         161 S L55 AND C09K007/IC,ICM,ICS
L63           1 S L62 AND L61
L64          40 S L61,L63

     FILE 'REGISTRY' ENTERED AT 08:21:12 ON 10 OCT 2002

=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 08:21:22 ON 10 OCT 2002
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)
```



```
FILE COVERS 1907 - 10 Oct 2002  VOL 137 ISS 15
FILE LAST UPDATED: 9 Oct 2002  (20021009/ED)

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

CAS roles have been modified effective December 16, 2001. Please
check your SDI profiles to see if they need to be revised. For
information on CAS roles, enter HELP ROLES at an arrow prompt or use
the CAS Roles thesaurus (/RL field) in this file.

=> d l64 bib abs hitrn retable tot
```

L64 ANSWER 1 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN 2002:605427 HCAPLUS
TI Novel application of synergistic guar/**non-acetylated xanthan gum** mixtures in hydraulic fracturing
AU Fischer, C. C.; Navarrete, R. C.; Constien, V. G.; Coffey, M. D.; Asadi, M.
CS Constien & Associates, USA
SO SPE International Symposium on Oilfield Chemistry, Conference Proceedings, Houston, TX, United States, Feb. 13-16, 2001 (2001), 485-496 Publisher: Society of Petroleum Engineers, Richardson, Tex.
CODEN: 69CZJT
DT Conference; (computer optical disk)
LA English
AB Fracturing fluids have traditionally been viscosified with guar and guar derivs. **Non-acetylated xanthan** is a variant of **xanthan gum** which when combined with guar in soln. develops a synergistic interaction that generates superior viscosity and particle transport at low polymer concns. These water-base linear fluids have improved low shear viscosity at concns. at or below 25 lb/1,000gal when compared to fluids viscosified using a single viscosifier such as guar or **xanthan gum**. The polymer mixts. can be crosslinked to provide enhanced viscosity at higher temps.

RETABLE

| Referenced Author (RAU) | Year (RPY) | VOL (RVL) | PG (RPG) | Referenced Work (RWK) | Referenced File |
|---|---|---|---|---|---|
| Anon | 1998 | | | Recommended Practice | |
| Dea, I | 1993 | | 21 | Industrial Gums | |
| Gulbis, J | 2000 | | 7 | Reservoir Stimulatio | |
| Harris, P | | | | Paper SPE 38621, pre | |
| Mwamufiya, I | 1998 | | | PhD Thesis, Princeto | |
| Nimerick, K | | | | Paper SPE 35638, pre | |
| Pope, D | | | | Paper SPE 31094, pre | |
| Roodhart, L | | | | Paper SPE 13905, pre | |
| Samuel, M | | | | Paper SPE 38622, pre | |
| Shah, S | | | | Paper SPE 49040, pre | |
| Talashek, T | 2000 | | | Personal Communicati | |
| Tehrani, A | 1996 | 40 | 1057 | J Rheol | |
| Unwin, A | | | | Paper SPE 29649, pre | |
| Willberg, D | | | | Paper SPE 38620, pre | |

L64 ANSWER 2 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **2001:163308** HCAPLUS
DN **134:349490**
TI Effect of a range of microbial polysaccharides on the diffusion of manganese ions using spatially resolved NMR relaxometry
AU Hart, T. D.; Hill, R. J.; Glover, P. M.; Lynch, J. M.; Chamberlain, A. H. L.
CS School of Biological Sciences, University of Surrey, Guildford, GU2 5XH, UK
SO Enzyme and Microbial Technology (2001), 28(4-5), 370-375
CODEN: EMTED2; ISSN: 0141-0229
PB Elsevier Science Ireland Ltd.
DT Journal
LA English
AB In accordance with the theory of contact exchange, it is hypothesized that the presence of neg. charge in microbial exopolysaccharides increases the rate of cation transport. These typically acidic materials may provide a fast-track for the diffusion of nutrient cations through the polymer layer for uptake at the organism cell surface. We have measured the diffusion coeff. of a model cation, Mn2+, through **xanthan, de-acetylated xanthan**, scleroglucan and chitosan using

spatially resolved NMR relaxometry. The concn. of Mn2+ in soln. was measured by recording the change in the spin-spin (T2) relaxation time of water 1H over time in compartments either side of a polymer layer. This approach provides a sensitive, in situ, non-invasive method of measuring the rate of diffusion of paramagnetic cations through hydrophilic polysaccharides. The neg.-charged polysaccharides, **xanthan** and **de-acetylated xanthan**, permitted a significantly faster rate (2-2.5.times.) of cation transport compared to the uncharged polymer, scleroglucan. The pos.-charged polysaccharide chitosan reduced the rate of Mn2+ diffusion to around half the value obtained for scleroglucan. These results suggest that the presence and nature of fixed charges on the polysaccharide mol. affects the rate of cation transport in accordance with the theory of contact exchange. The presence of neg. charge on microbial exopolysaccharides may thus improve the availability of nutrient cations at the organism cell surface.

IT **11138-66-2, Xanthan 11138-66-2D, Xanthan, deacetylated**
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(effect of a range of microbial polysaccharides on the diffusion of manganese ions using spatially resolved NMR relaxometry)

RETABLE

| Referenced Author (RAU) | Year (RPY) | VOL (RVL) | PG (RPG) | Referenced Work (RWK) | Referenced File |
|---|---|---|---|---|---|
| Bloembergen, N | 1961 | 34 | 842 | J Chem Phys | HCAPLUS |
| Corpe, W | 1980 | | 105 | Adsorption of microo | HCAPLUS |
| Efron, B | 1977 | 7 | 1 | Ann Stat | |
| Foster, R | 1983 | | | Ultrastructure of th | |
| Geddie, J | 1993 | 74 | 467 | J Appl Bacteriol | HCAPLUS |
| Geesey, G | 1989 | | 325 | Metal ions and bacte | |
| Glauser, R | 1960 | 5 | 1 | Agrochimica | HCAPLUS |
| Harned, H | 1958 | | | The physical chemist | |
| Hart, T | 2000 | | | Environ Microbiol, i | |
| Hart, T | 1999 | 24 | 339 | Enzyme Microb Techno | HCAPLUS |
| Hassler, R | 1990 | 6 | 182 | Biotechnol Prog | HCAPLUS |
| Holzwarth, G | 1985 | 26 | 271 | Dev Ind Microbiol | HCAPLUS |
| Jeanes, A | 1961 | 5 | 519 | J Appl Polymer Sci | HCAPLUS |
| Jenny, H | 1961 | 5 | 281 | Agrochimica | |
| Jenny, H | 1961 | | 665 | Growth in living sys | |
| Jenny, H | 1966 | 25 | 265 | Pl Soil | HCAPLUS |
| La Paglia, C | 1997 | 63 | 3158 | Appl Environ Microbi | HCAPLUS |
| Luz, Z | 1965 | 43 | 3750 | J Chem Phys | HCAPLUS |
| Meares, P | 1958 | 55 | 273 | J Chim Phys | HCAPLUS |
| Nambier, G | 1976 | 44 | 267 | Pl Soil | |
| Patil, S | 1993 | 173 | 153 | J Radional Nuclear C | HCAPLUS |
| Ramamoorthy, S | 1977 | 66 | 527 | J Theor Biol | HCAPLUS |
| Sollner, K | 1974 | 53 | 267 | J Dental Res | HCAPLUS |
| Tako, M | 1992 | 489 | 268 | ACS Symposium Series | HCAPLUS |

L64 ANSWER 3 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **2001:94303** HCAPLUS
DN **134:310527**
TI Enhanced compatibility of **xanthan** variants in phosphate systems
AU Swazey, John
CS CP Kelco, UK
SO Research Disclosure (2001), 441(Jan.), P5-P8 (No. 441005)
CODEN: RSDSBB; ISSN: 0374-4353
PB Kenneth Mason Publications Ltd.
DT Journal; Patent
LA English

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI RD 441005 | | 20010110 | | |

PRAI RD 2001-441005 20010110

AB **Nonacetylated xanthan** (NAX), nonpyruvylated **xanthan** (NPX), and **nonacetylated**, nonpyruvylated **xanthan** (NPNAX) were tested in ammonium polyphosphate soln. (10-34-0) and diammonium phosphate. Hydration is typically not possible in fluids contg. >45% 10-34-0 soln. with **xanthan** products; however, with NAX hydration was possible in solns. contg. .gtoreq.60% 10-34-0. For NPNAX hydration was possible in solns. contg. .gtoreq.70% 10-34-0. **Xanthan gum** variants also performed well in diammonium phosphate. Compatibility of prehydrated **xanthan gum** variants with phosphates was tested also. Results indicated improved compatibility of **xanthan** variants in systems with high phosphate levels. Findings extend **xanthan** functionality to formulations where std. **xanthan gum** is incompatible or unstable.

IT **11138-66-2D, Xanthan gum, deacetylated** and (or) depyruvylated
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(enhanced compatibility of **xanthan** variants in phosphate systems)

L64 ANSWER 4 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN **2000:768961** HCAPLUS

DN **133:295710**

TI Viscosity-stable low-**acetylated xanthan gum** for food use

IN Zablocki, Linda J.; Bousman, W. Scott; Solanki, Yogesh; Milovanovic, Susan B.; King, Alan

PA Monsanto Company, USA

SO U.S., 9 pp.
CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 6139895 | A | 20001031 | US 1999-347259 | 19990706 <-- |
| | WO 2001001793 | A1 | 20010111 | WO 2000-US17764 | 20000629 <-- |
| | W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| | RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| | EP 1207761 | A1 | 20020529 | EP 2000-941759 | 20000629 <-- |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL | | | | |
| PRAI | US 1999-347259 | A | 19990706 <-- | | |
| | WO 2000-US17764 | W | 20000629 | | |

AB An acidic edible liq. compn. comprises a low-**acetylated xanthan gum** in an amt. effective to sustain the initial viscosity of the compn. for at least about four months. Preferred compns. include beverages and syrups. Beverages include carbonated and non-carbonated soft drinks, still beverages, fruit-juice-type beverages, squashes and cordials, alc. and nonalcoholic, their concs. and mixts. thereof. A method for stabilizing an acidic edible liq. compn. comprises admixing an effective amt. of a low-**acetylated xanthan gum** to maintain the initial viscosity of the compn. for at least about four months under typical storage conditions. Thus,

**deacetylated xanthan gum** (1.0% wt./wt.; acetate content 1%) and sodium benzoate (0.33% wt./wt.) were mixed with deionized water; 150 g of the compn. was dild. to 500 g by the addn. of deionized water. The compn. was titrated to pH 4.0 with phosphoric acid. The initial viscosity was 195 cP. After 39 wk storage at ambient temp., e.g., 22.degree., the pH was 3.9 and the viscosity was 177.5 cp; the loss in viscosity during storage was 17.5 cP or about 9%.

IT **11138-66-2, Xanthan gum**
RL: FFD (Food or feed use); PRP (Properties); BIOL (Biological study); USES (Uses)
(**deacetylated**; viscosity-stable low-**acetylated** **xanthan gum** for food use)

RETABLE

| Referenced Author (RAU) | Year (RPY) | VOL (RVL) | PG (RPG) | Referenced Work (RWK) | Referenced File |
|---|---|---|---|---|---|
| Anon | 1997 | | | WO 9746656 | HCAPLUS |
| Campaigne | 1979 | | | US 4154654 | HCAPLUS |
| Cheetham, N | 1985 | 5 | 399 | Carbohydr Polym | HCAPLUS |
| Doherty | 1996 | | | US 5514791 | HCAPLUS |
| Hassler, R | 1990 | 6 | 182 | Biotechnol Prog | HCAPLUS |
| Jansson, P | 1975 | 45 | 275 | Carbohydr Research | HCAPLUS |
| Kragen | 1983 | | | US 4369125 | HCAPLUS |
| Maury | 1982 | | | US 4352882 | HCAPLUS |
| McNeely | 1968 | | | US 3391060 | HCAPLUS |
| Montezinos | 1998 | | | US 5792502 | HCAPLUS |
| Patton | 1962 | | | US 3020206 | HCAPLUS |
| Patton | 1962 | | | US 3020207 | HCAPLUS |
| Richmon | 1983 | | | US 4375512 | HCAPLUS |
| Stankowski, J | 1993 | 241 | 321 | Carbohydr Research | HCAPLUS |
| Tait, M | 1990 | 13 | 133 | Carbohydr Polym | HCAPLUS |

L64 ANSWER 5 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **2000:438241** HCAPLUS
DN **133:336764**
TI Heterotypic interactions of **deacetylated xanthan** with a galactomannan of high galactose substitution during synergistic gelation
AU Goycoolea, Francisco M.; Milas, Michel; Rinaudo, Marguerite
CS Centro de Investigacion en Alimentacion y Desarrollo, Sonora, 83000, Mex.
SO Special Publication - Royal Society of Chemistry (**2000**), 251(Gums and Stabilisers for the Food Industry 10), 229-240
CODEN: SROCDO; ISSN: 0260-6291
PB Royal Society of Chemistry
DT Journal
LA English
AB Phys. thermo-reversible gels of **deacetylated xanthan** (DX) mixed with varying concns. of galactomannan extd. from mesquite (Prosopis spp.) seed endosperm (MSG) (M/G .apprx. 1.1; MW .apprx. 2.1 .times. 106) set and melt co-operatively at .apprx.23-27.degree.C in 5 mM NaCl. The liq.-like character of the gels at 20.degree.C (tan .delta.20.degree.C) and at the gelling temp. (tan .delta.critical), attained their min. values when the concn. of MSG was .apprx.0.4-0.5 g L-1, while holding fixed that of DX at .apprx.1.0 g L-1. Mech. elasticity (G'), increased progressively as the proportion of MSG incorporated in the mixt. increased from 0 up to .apprx.0.5 g L-1 and beyond this concn., G' values showed little further change with increasing MSG concn.; this initial behavior is related to a progressive crosslinking of galactomannan and DX leading to establishment of a temporary gel network. Both values of onset temp. of gel formation (Tg) and that of DSC midpoint thermal transition (Tm), are in good agreement (Tg .apprx.23.3.degree.C and Tm .apprx.26.0.degree.C) and vary slightly in mixts. within this range of compn. However, as the amt. of unbound MSG increased for a MSG/DX wt. ratio .gtoreq. 0.6, Tg values increased progressively up to

.apprx.27.0.degree.C, while Tm also showed a break-point in the pattern of behavior for setting and melting as a function of compn. For mixts. of MSG:DX wt. ratio < .apprx.0.5, the interaction in the system has the characteristics of an heterotypic assocn. process, resulting in the creation of a coupled gel network. The optimum stoichiometric ratio seems to involve a 1:1 polymer chain pair (based on the contour length) of high galactose galactomannan and disordered DX species. Greater Tg and Tm values, beyond the stoichiometric compn. ratio may result from the increase in solvent viscosity due to unbound surplus galactomannan.

IT **11138-66-2, Xanthan**
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(**deacetylated**; heterotypic interactions of **deacetylated xanthan** with a galactomannan of high galactose substitution during synergistic gelation)

RETABLE

| Referenced Author (RAU) | Year (RPY) | VOL (RVL) | PG (RPG) | Referenced Work (RWK) | Referenced File |
|---|---|---|---|---|---|
| Annable, P | 1994 | 27 | 4202 | Macromolecules | |
| Bjorndal, H | 1970 | 9 | 610 | Angew Chem Int Ed En | HCAPLUS |
| Bresolin, T | 1998 | 23 | 263 | Int J Biol Macromol | HCAPLUS |
| Bresolin, T | 1999 | | | Int J Biol Macromol | |
| Brownsey, G | 1988 | 176 | 329 | Carbohydr Res | |
| Cairns, P | 1987 | 160 | 411 | Carbohydr Res | HCAPLUS |
| Cairns, P | 1986 | 322 | 89 | Nature | HCAPLUS |
| Chambon, F | 1987 | 31 | 683 | J Rheol | HCAPLUS |
| Chandrasekaran, R | 1997 | 32 | 201 | Carbohydr Polym | HCAPLUS |
| Cheetham, N | 1986 | 6 | 257 | Carbohydr Polym | HCAPLUS |
| Dea, I | 1972 | 31 | 241 | Adv Carbohydrate Che | |
| Dea, I | 1977 | 57 | 249 | Carbohydr Res | HCAPLUS |
| Dea, I | 1986 | 147 | 275 | Carbohydr Res | HCAPLUS |
| Fernandes, P | 1995 | 24 | 269 | Biopolymers | |
| Foster, T | 1992 | | | Thesis University of | |
| Ganter, J | 1995 | 17 | 13 | Int J Biol Macromol | HCAPLUS |
| Gomes, C | 1998 | | 239 | Gums and Stabilisers | HCAPLUS |
| Goycoolea, F | 1995 | 28 | 351 | Carbohydr Polym | HCAPLUS |
| Goycoolea, F | 1995 | 28 | 8308 | Macromolecules | HCAPLUS |
| Jansson, P | 1975 | 45 | 275 | Carbohydr Res | HCAPLUS |
| Lurdin, L | 1995 | 26 | 129 | Carbohydr Polym | |
| Mannion, R | 1992 | 19 | 91 | Carbohydr Polym | HCAPLUS |
| McCleary, B | 1979 | 71 | 205 | Carbohydr Res | HCAPLUS |
| McCleary, B | 1981 | 92 | 269 | Carbohydr Res | HCAPLUS |
| Melton, L | 1976 | 46 | 245 | Carbohydr Res | HCAPLUS |
| Milas, M | 1986 | 158 | 191 | Carbohydr Res | HCAPLUS |
| Morris, E | 1995 | | 247 | Biopolymer Mixtures | HCAPLUS |
| Morris, E | 1977 | 110 | 1 | J Mol Biol | HCAPLUS |
| Nijenhuis, K | 1989 | 22 | 411 | Macromolecules | |
| Rinaudo, M | 1981 | 150 | 367 | ACS Symposium Series | HCAPLUS |
| Rinaudo, M | 1998 | 39 | 680 | Polymer Preprints | HCAPLUS |
| Schorsch, C | 1997 | 34 | 165 | Int J Biol Macromol | HCAPLUS |
| Shatwell, K | 1990 | 206 | 87 | Carbohydr Res | HCAPLUS |
| Tako, M | 1985 | 138 | 207 | Carbohydr Res | HCAPLUS |
| Tinland, B | 1988 | 9 | 69 | Makromol Chem Rapid | HCAPLUS |
| Williams, P | 1991 | 4 | 489 | Food Hydrocoll | HCAPLUS |
| Zhan, D | 1993 | 21 | 53 | Carbohydr Polym | HCAPLUS |

L64 ANSWER 6 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1999:169667** HCAPLUS
DN **130:322537**
TI A stray field magnetic resonance study of water diffusion in bacterial exopolysaccharides
AU Hart, T. D.; Chamberlain, A. H. L.; Lynch, J. M.; Newling, B.; McDonald, P. J.

CS School of Biological Sciences, University of Surrey, Guildford, GU2 5XH, UK
SO Enzyme and Microbial Technology (**1999**), 24(5/6), 339-347
CODEN: EMTED2; ISSN: 0141-0229
PB Elsevier Science Inc.
DT Journal
LA English
AB Nuclear (1H) magnetic stray field gradient methods have been used to measure the concn. dependence of the water self-diffusion coeff. (Dself) in the com. available bacterial exopolysaccharide **xanthan** and a chem. derived **deacetylated** form. The Dself coeff. of water is interpreted to directly relate to the degree of water binding in the polysaccharide gel. The removal of **acetyl** groups from **xanthan** has been shown to result in a redn. in Dself at any given polymer concn. In addn., stray field magnetic resonance profiling (1H) has been used to measure the rate at which water diffuses through a polysaccharide gel at a range of polymer concns. (Dmutual coeff. of water) in: **xanthan; deacetylated xanthan** and polymers produced by the soil bacteria, Enterobacter cloacae and Azotobacter chroococcum. Samples with a reduced **acetyl** or uronic acid content showed a lower Dmutual coeff. at a range of polymer concns. The lower Dself coeff. found for **deacetylated xanthan** is believed to contribute to the lower Dmutual coeff. obtained relative to the native mol. The obsd. link between the mobility (Dself) and transport (Dmutual) of water in bacterial exopolysaccharides furthers our understanding of the role(s) of these materials for bacteria and opens new opportunities for engineering bacteria for improved survival in water-stressed environments.
IT **11138-66-2, Xanthan gum 11138-66-2D, Xanthan gum, deacetylated**
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(a stray field magnetic resonance study of water diffusion in bacterial exopolysaccharides)

RETABLE

| Referenced Author (RAU) | Year (RPY) | VOL (RVL) | PG (RPG) | Referenced Work (RWK) | Referenced File |
|---|---|---|---|---|---|
| Al-Rashidi, R | 1982 | 14 | 489 | Soil Biol Biochem | |
| Ashraf, M | 1994 | 13 | 17 | Crit Rev Plant Sci | |
| Barrie, J | 1968 | | 259 | Diffusion in Polymer | HCAPLUS |
| Bengtsson, G | 1991 | 86 | 15 | FEMS Microb Ecol | HCAPLUS |
| Bitton, G | 1976 | 45 | 65 | Plant Soil | |
| Blumenkrantz, N | 1973 | 54 | 484 | Anal Biochem | HCAPLUS |
| Bohnert, H | 1996 | 14 | 89 | Tibtech | HCAPLUS |
| Brewer, R | 1984 | 251 | 42 | Sci Am | |
| Brown, M | 1979 | 13 | 817 | Water Res | HCAPLUS |
| Bushby, H | 1977 | 99 | 19 | J Gen Microbiol | |
| Callet, F | 1987 | 9 | 291 | Int J Biol Macromol | HCAPLUS |
| Chapman, S | 1985 | 7 | 161 | Enzyme Microb Techno | HCAPLUS |
| Chenu, C | 1995 | | 217 | Environmental Impact | HCAPLUS |
| Chenu, C | 1993 | 56 | 143 | Geoderma | HCAPLUS |
| Cheshire, M | 1977 | 28 | 1 | J Soil Sci | HCAPLUS |
| Crank, J | 1975 | | 105 | The Mathematics of D | |
| Djordjevic, M | 1987 | 25 | 145 | Ann Rev Phytopathol | |
| Dubois, M | 1956 | 3 | 350 | Anal Chem | |
| Dubos, R | 1945 | | | The Bacterial Cell | |
| Dudman, W | 1977 | | 357 | Surface Carbohydrate | HCAPLUS |
| Foster, R | 1983 | | 145 | Ultrastructure of th | |
| Geddie, J | 1993 | 74 | 467 | J Appl Bacteriol | HCAPLUS |
| Geesey, G | 1989 | | 325 | Metal Ions and Bacte | |
| Harper, S | 1979 | 112 | 45 | J Gen Microbiol | |
| Harris, R | 1981 | | 23 | Water Potential Rela | HCAPLUS |

| | | | | | |
|---|---|---|---|---|---|
| Hart, T | 1997 | | | Diffusion of ions an | |
| Hestrin, S | 1949 | 180 | 249 | J Biol Chem | HCAPLUS |
| Kamoun, S | 1989 | 171 | 1755 | J Bacteriol | HCAPLUS |
| Kennedy, A | 1987 | 9 | 12 | Biotechnol Appl Bioc | HCAPLUS |
| Kieft, T | 1987 | 19 | 119 | Soil Biol Biochem | |
| Kimmich, R | 1991 | 91 | 136 | J Magn Reson | HCAPLUS |
| Krynicki, K | 1978 | 66 | 199 | Faraday Discuss Chem | |
| La Paglia, C | 1997 | 63 | 3158 | Appl Environ Microbi | HCAPLUS |
| Lynch, J | 1981 | 126 | 371 | J Gen Microbiol | |
| Marechal, P | 1994 | 42 | 617 | Appl Microbiol Biote | HCAPLUS |
| McDonald, P | 1997 | 30 | 69 | Prog Nucl Magn Reson | HCAPLUS |
| Meares, P | 1968 | | 373 | Diffusion in Polymer | HCAPLUS |
| Norkrans, B | 1980 | | 51 | Advances in Microbia | HCAPLUS |
| Osa-Afiana, L | 1982 | 46 | 285 | J Soil Sci Soc Am | |
| Poirier, I | 1997 | 82 | 101 | J Appl Microbiol | MEDLINE |
| Rees, D | 1977 | | 1 | Polysaccharide Shape | |
| Roberson, E | 1992 | 58 | 1284 | Appl Environ Microbi | HCAPLUS |
| Samoilenko, A | 1988 | 47 | 417 | JETP Lett | |
| Schmit, J | 1984 | 229 | 733 | Comptes Rendus Acad | |
| Seybold, C | 1994 | 25 | 2171 | Commun Soil Sci Plan | HCAPLUS |
| Slonekar, J | 1962 | 194 | 478 | Nature | |
| Stejskal, E | 1965 | 42 | 288 | J Chem Phys | HCAPLUS |
| Sutherland, I | 1985 | 39 | 243 | Ann Rev Microbiol | HCAPLUS |
| Sutherland, I | 1994 | 12 | 393 | Biotechnol Adv | HCAPLUS |
| Tait, M | 1986 | 132 | 1483 | J Gen Microbiol | HCAPLUS |
| Tomlinson, D | 1972 | 25 | 735 | Mol Phys | |
| Wilkinson, J | 1958 | 22 | 46 | Bacteriol Rev | HCAPLUS |
| Woofaardt, G | 1994 | 27 | 279 | Microb Ecol | |

L64 ANSWER 7 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN 1999:77644 HCAPLUS
DN 130:141516
TI **Deacetylated xanthan gum**-containing guar-free aqueous drilling fluids for petroleum wells
IN **Langlois, Bruno**
PA **Rhodia** Chimie, Fr.
SO PCT Int. Appl., 33 pp.
CODEN: PIXXD2
DT Patent
LA French
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | WO 9903948 | A1 | 19990128 | WO 1998-FR1514 | 19980710 |
| | W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| | RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| | FR 2766203 | A1 | 19990122 | FR 1997-9087 | 19970717 |
| | FR 2766203 | B1 | 20020524 | | |
| | AU 9887343 | A1 | 19990210 | AU 1998-87343 | 19980710 |
| | EP 998540 | A1 | 20000510 | EP 1998-938729 | 19980710 |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |
| | NO 2000000208 | A | 20000317 | NO 2000-208 | 20000114 |
| | US 2002137635 | A1 | 20020926 | US 2001-82555 | 20011022 |
| PRAI | FR 1997-9087 | A | 19970717 | | |
| | WO 1998-FR1514 | W | 19980710 | | |
| | US 2000-462995 | A1 | 20000114 | | |

AB Guar-free aq. fluids for use in oil exploration contains **deacetylated xanthan gum**, in the form of a **pentamer**, which is combined with at least one compd. that increases the ionic strength of the medium and a std. filtrate reducing compd. Compds. that increase the ionic strength include org. or mineral acids, salts (e.g., halides, sulfates, carbonates, bicarbonates, silicates, phosphates, and formates), and alkali metal and alk. earth metal formates and acetates. The fluids typically contain 0.01-2 wt.% **deacetylated** guar gum, 5000-110,000 ppm of compds. that increase the ionic strength of the medium, and 0-1 wt.% of a filtrate-reducing compd. Typical filtrate-reducing compds. include cellulose derivs., polyacrylamides, polyacrylates, succinoglycans, natural starches and starch derivs., and carbons. Other components present can include dispersants (e.g., polyphosphates, tannins, polynaphthalenesulfonates, etc.), oxygen scavengers, and densifying agents (e.g., zinc salts, iron oxides, barite, etc.).

IT **11138-66-2D, Xanthan gum, deacetylated**
RL: TEM (Technical or engineered material use); USES (Uses)
(drilling fluids contg.; **deacetylated xanthan gum**-contg. guar-free aq. drilling fluids for petroleum wells)

RETABLE

| Referenced Author (RAU) | Year (RPY) | VOL (RVL) | PG (RPG) | Referenced Work (RWK) | Referenced File |
|---|---|---|---|---|---|
| Esso Production Researc | 1967 | | | GB 1080248 A | |
| Getty Scientific Develo | 1997 | | | EP 0765939 A | HCAPLUS |
| Jeanes, A | 1963 | | | US 3096293 A | HCAPLUS |
| Mondshine, T | 1980 | | | US 4186803 A | HCAPLUS |
| Vanderslice, R | 1989 | | | US 4868293 A | HCAPLUS |
| Wellington, S | 1980 | | | US 4218327 A | HCAPLUS |

L64 ANSWER 8 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1996:309789** HCAPLUS
DN **125:8943**
TI Influence of **acyl** substituents on the interaction of **xanthans** with plant polysaccharides
AU Ross-Murphy, S. B.; Shatwell, K. P.; Sutherland, I. W.; Dea, I. C. M.
CS Division Life Sciences, King's College London, London, W8 7AH, UK
SO Food Hydrocolloids (**1996**), 10(1), 117-122
CODEN: FOHYES; ISSN: 0268-005X
PB Oxford University Press
DT Journal
LA English
AB Small deformation rheol. and measurement of crit. gelling concns. has been carried out to study the interactions between solns. of microbially cultured variant **xanthans** and chem. modified samples of this polymer, with three plant polysaccharides, guar **gum**, locust bean **gum** and konjac mannan. Using these methods we have been able to assess the influence of the **acyl** substituents upon the interaction behavior.
IT **11138-66-2, Xanthan**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(**acyl** substituents effect on interaction of **xanthans** with plant polysaccharides)

L64 ANSWER 9 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN 1996:309785 HCAPLUS
DN 125:8939
TI Release of disordered **xanthan** oligomers upon partial acid hydrolysis of double-stranded **xanthan**
AU Stokke, Bjorn Torger; Christensen, Bjorn Erik
CS Department Physics, University Trondheim, Trondheim, N-7034, Norway

SO Food Hydrocolloids (1996), 10(1), 83-89
CODEN: FOHYES; ISSN: 0268-005X
PB Oxford University Press
DT Journal
LA English
AB Double stranded **xanthan** was subjected to acid hydrolysis and was found to yield **xanthans** with partly truncated sidechains and decreasing mol. wt. The depolymn. kinetics of **xanthan** deviated from that of dispersed single-stranded polymers by revealing an initial regime in which the **xanthan** prepn. showed only minor decrease in mol. wt. (referring to the intact **polypentamer** repeating unit). Subsequently, a more rapid degrdn. occurred. In the latter phase an oligomeric fraction yielding an overall bimodal mol. wt. distribution, also started to appear in the mol. wt. distribution. This oligomeric fraction had the same chem. compn. as the rest of the sample. Exptl. detn. of the mass per unit length suggests that the partly hydrolyzed **xanthans** also possessed the basic duplex structure of intact **xanthan**. These data can be accounted for by taking the cooperative nature of the dimerization occurring on pairing two **xanthan** chains into account in a Monte Carlo model for depolymn. of duplex polymers.
IT **11138-66-2, Xanthan**
RL: RCT (Reactant); RACT (Reactant or reagent)
(double-stranded; release of disordered **xanthan** oligomers on partial acid hydrolysis of)

L64 ANSWER 10 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN 1996:306131 HCAPLUS
DN 124:346429
TI Screening for synergistic interactions in dilute polysaccharide solutions
AU Goycoolea, F. M.; Morris, E. R.; Gidley, M. J.
CS Silsoe College, Silsoe, Cranfield University, Bedford, MK45 4DT, UK
SO Carbohydrate Polymers (1996), Volume Date 1995, 28(4), 351-358
CODEN: CAPOD8; ISSN: 0144-8617
PB Elsevier
DT Journal
LA English
AB A simple viscometric approach was used to screen for binding interactions between different polysaccharides in very dil. soln. where exclusion effects should be negligible. The method involves prepg. stock solns. to approx. the same, low viscosity (.eta.sp .apprxeq. 1), dialyzing to identical ionic conditions, mixing in various proportions, and looking for departures from the initial common viscosity. Mixts. of **xanthan gum** or **de-acetylated xanthan gum** with carob gum (I) or konjac mannan (II) show massive enhancement of viscosity, as anticipated from the formation of synergistic gels at higher concns. However, no viscosity changes upon mixing with I or II were obsd. for other conformationally ordered bacterial polysaccharides (welan and rhamsan) or for alginate and pectin with sufficient Ca2+ to induce almost complete conversion to the dimeric "egg box" form, demonstrating that conformational rigidity is not, in itself, sufficient for other polysaccharides to form heterotypic junctions with mannan or glucomannan chains. Interactions of carrageenans with I depended on both conformation and the extent of aggregation. Mixts. of I with K+ .kappa.-carrageenan (III) in 100 mM KCl (which is known to promote extensive aggregation of double helixes) gave erratic values for rotational viscosity and showed typical gel-like mech. spectra under low-amplitude oscillation. Disordered carrageenans, i.e., K+ III in water and K+ .lambda.-carrageenan in 100 mM KCl, showed no evidence of interaction with I. Neg. results were also obtained for .iota.-carrageenan (IV) under ionic conditions believed to promote ordering without significant aggregation (100 mM KCl). However, under conditions where limited aggregation might be expected, e.g. IV in 90 mM

CaCl2 and Me4N+ III in 150 mM Me4NI, significant decreases in viscosity were obsd. upon mixing with I, which may indicate some intermol. assocn. but without the formation of an extended network structure.

L64 ANSWER 11 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN 1996:72500 HCAPLUS
DN 124:261539
TI Dynamic simulations of the molecular conformations of wild type and mutant **xanthan** polymers suggest that conformational differences may contribute to observed differences in viscosity
AU Levy, Samuel; Schuyler, Scott C.; Maglothin, Ronald K.; Staehelin, L. Andrew
CS Dep. Mol. Cell. Dev. Biol., Univ. Colorado, Boulder, CO, 80309-0347, USA
SO Biopolymers (1996), 38(2), 251-72
CODEN: BIPMAA; ISSN: 0006-3525
PB Wiley
DT Journal
LA English
AB **Xanthan gum** is an exopolysaccharide secreted by the bacterium Xanthomonas campestris whose ability to make solns. viscous at low concns. and over a pH and temp. range have generated much interest in both academic and industrial environments. Mutant Xanthomonas strains have been derived that produce **xanthan gums** with an altered or variant subunit chem. structure and different measured viscosities when compared with the wild type (wt) form of the polymer. Two variant gums were targeted as potentially interesting in this study, these being the **nonacetylated** tetramer (natet) and the **acetylated** tetramer (atet), which both lack a side-chain terminal mannose residue and in one case (natet) lacks an acetate group on an internal mannose residue. Solns. of these tetrameric gums possess viscosities higher (natet) and lower (atet) than the wt gum, and therefore we have attempted to det. whether these mols. possess unique conformational preferences when compared with the wt and with each other. In this manner we can initiate an understanding of how a polysaccharide's conformation contributes to its soln. properties. The GEGOP software permits a sampling of the static and dynamic equil. states of carbohydrate mols., and this software was employed to calc. equil. states of representative oligosaccharides with chem. structures representative of **xanthan**-like mols. Energy minimization techniques revealed similar local min. for all three mols. Some of these min. are comprised of elongate backbone conformations (A type) in which side chains fold onto backbone surfaces. Other min. with A backbones possessed side chains in less intimate backbone contact esp. when calcns. were performed with a low dielec. const. This phenomenon was particularly pronounced in the wt mol. where an increased no. of neg. charged side-chain residues experience charge repulsion resulting in reduced side-chain-backbone contact. Metropolis Monte Carlo (MMC) dynamic simulations performed with an elevated temp. factor (1000 K) allowed a better qual. representation of conformational space than 300 K simulations. Employing a nonhierarchical cluster anal. method (population d. profile: PDP) coupled with a classification scheme, it was possible to partition resulting MMC data sets into conformational families. This anal. revealed that in simulations performed with different dielec. const. values (10, 25, and .infin.) all mols. possessed primarily A-type backbones. Less elongate, more open helical backbone forms (B, C, D, J, and Flat-a) did occur during the simulations but were populated to a lesser extent. In the natet mol. significantly open helical backbones existed (E, F, G, H, and I) that did not occur in the lower viscosity wt and atet mols. PDP clustering methods and subsequent conformational classification applied to the first residue (mannose) of the side chain permitted a detn. of side-chain orientation. Comparison of all three mols. indicated a larger population of side-chain conformational families in less direct backbone contact for the wt mol. than either of the variant mols. (natet/atet) suggesting that the side

chains in the wt are more flexible. Thus, a major conformational difference between the high viscosity natet and the lower viscosities of the wt/atet is the increased amt. of open helical backbone in the natet. In addn., the significant difference between the higher viscosity wt and the lower viscosity atet is the increase side-chain flexibility in the wt. We hypothesize that conformational differences of this kind could form a partial explanation of the obsd. differences in viscosity between these **xanthan**-like polymers.

IT **11138-66-2, Xanthan**
RL: PRP (Properties)
(dynamics simulations of the mol. conformations of wild type and mutant **xanthans** suggest that conformational differences may contribute to obsd. differences in viscosity)

L64 ANSWER 12 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1996:68353** HCAPLUS
DN **124:179354**
TI Synergistic gelation of galactomannans or konjac glucomannan: Binding or exclusion?
AU Goycoolea, F. M.; Foster, T. J.; Richardson, R. K.; Morris, E. R.; Gidley, M. J.
CS Cranfield Institute Technology, Silsoe College, Bedford, MK45 4DT, UK
SO Gums and Stabilisers for the Food Industry 7, [Proceedings of the International Conference], 7th, Wrexham, UK, July 1993 (**1994**), Meeting Date 1993, 333-44. Editor(s): Phillips, Glyn O.; Williams, Peter A.; Wedlock, David J. Publisher: IRL Press, Oxford, UK.
CODEN: 62HUAF
DT Conference
LA English
AB Synergistic gels of **xanthan** or **deacetylated** **xanthan** with locust bean **gum** (LBG) or konjak mannan (KM) melt and set at .apprx.60.degree., with no thermal hysteresis. Gel-like rheol. persists to very low concns. (0.02% w/v). Gelation occurs with the **xanthan** component in either its ordered or disordered form, and is accompanied, with KM as co-synergist, by large enthalpy changes (.DELTA.H) in DSC. Formation and melting of synergistic gels of .kappa.-carrageenan with LBG or KM, in contrast, invariably occur a few degrees above the corresponding processes for carrageenan alone. Mutual exclusion, driving formation of an interpenetrating network of LBG or KM within the carrageenan gel, would be consistent with SEM evidence, but not with double-peaking in DSC. The onset of synergistic gelation occurs when there is, on av., about one full turn of helix structure in each carrageenan chain. We therefore suggest that the most likely interpretation is that unsubstituted regions of the LBG or KM backbone bind to the helixes as they form, thus raising the temp. of ordering and gelation.
IT **11138-66-2, Xanthan gum 11138-66-2D, Xanthan gum, deacetylated**
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(synergistic gelation of galactomannans or glucomannans)

L64 ANSWER 13 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1996:68348** HCAPLUS
DN **124:179351**
TI **Xanthan** polytetramer: Conformational stability as a barrier to synergistic interaction
AU Foster, T. J.; Morris, E. R.
CS Cranfield Institute Technology, Silsoe College, Bedford, MK45 4DT, UK
SO Gums and Stabilisers for the Food Industry 7, [Proceedings of the International Conference], 7th, Wrexham, UK, July 1993 (**1994**), Meeting Date 1993, 281-9. Editor(s): Phillips, Glyn O.; Williams, Peter A.; Wedlock, David J. Publisher: IRL Press, Oxford, UK.
CODEN: 62HUAF

DT Conference
LA English
AB The genetically engineered polytetramer variant of **xanthan**, in which the terminal mannose residues of each side chain are absent, shows a thermoreversible conformational transition in soln. (as monitored by DSC, CD, and optical rotation). As found for **xanthan**, there is no detectable thermal hysteresis on cooling, and 1/Tm decreases linearly with ln I (where Tm is the transition midpoint temp. and I is ionic strength), but the Tm values for polytetramer are substantially higher. Native polytetramer shows normal soln. rheol., but develops some **xanthan** -like "weak-gel" properties after heating and cooling through the temp. range of the conformational transition. We suggest that the polymer, as biosynthesized, is fully ordered along each chain, but renatures with shorter ordered sequences that promote network formation. The polytetramer shows no evidence of synergistic assocn. with locust bean **gum** or konjac glucomannan, in contrast to **xanthan** and (particularly) **deacetylated xanthan**, which gave massive viscous interactions even in very dil. soln. The difference is attributed to the enthalpic stability of the polytetramer helix (.DELTA.H .sum. 8.5 J/g, in comparison with .apprx.4.0 J/g for **xanthan**) preventing conformational rearrangement into heterotypic junctions. **Nonacetylated** polytetramer (also genetically engineered) gave a similar high value of .DELTA.H and again showed no evidence of synergistic interaction. As found for **xanthan**, the absence of acetate groups lowers Tm, indicating that they contribute to the stability of the ordered structure.
IT **11138-66-2D, Xanthan gum**, polytetramer derivs.
RL: PRP (Properties)
(conformational stability as a barrier to synergistic interaction)

L64 ANSWER 14 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1995:894421** HCAPLUS
DN **123:312460**
TI Stoichiometry and Conformation of **Xanthan** in Synergistic Gelation with Locust Bean **Gum** or Konjac Glucomannan: Evidence for Heterotypic Binding
AU Goycoolea, F. M.; Richardson, R. K.; Morris, E. R.; Gidley, M. J.
CS Silsoe College, Cranfield University, Silsoe/ Bedford, BEDFORD, UK
SO Macromolecules (**1995**), 28(24), 8308-20
CODEN: MAMOBX; ISSN: 0024-9297
PB American Chemical Society
DT Journal
LA English
AB Synergistic gels of **xanthan** or **deacetylated xanthan** (DX) with locust bean **gum** (LBG) or konjac glucomannan (KM) melt and set at .apprx.60 .degree.C, with no thermal hysteresis. Gelation occurs with the **xanthan** component in either its ordered or its disordered form and, with KM as cosynergist, is accompanied by large enthalpy changes (.DELTA.H) in DSC. Gel modulus (G') and .DELTA.H increase linearly with increasing ratio of KM:DX up to .apprx.1:1, with little further change at higher ratios. Liq.-like character (tan .delta.) passes through a sharp min. at about the same compn. Mixed gels of KM with unmodified **xanthan** show similar behavior, but the max. value of .DELTA.H is lower, and the proportion of KM required to achieve this max. is higher. The heat changes (per gram of **xanthan** or DX) depend only on mixing ratio, not on total concn., arguing strongly for stoichiometric binding rather than an exclusion mechanism. With LBG in place of KM, the sol-gel transition is much wider and gives no discernible peaks in DSC. The min. in tan .delta. with varying compn., however, is still evident, again arguing for a binding process, and the moduli are higher (.apprx.3.times.). Gels incorporating KM show evidence of structural rearrangement after their initial formation (maxima in the temp. dependence of G''; shoulders in tan .delta. and in

DSC); no such effects are seen for LBG. In the light of previous X-ray diffraction studies in the condensed phase, it is suggested that initial gelation involves heterotypic junctions between **xanthan** or DX and KM or LBG, with both components in a 21 conformation, but that junctions involving KM convert to a more compact 6-fold arrangement at lower temp.

IT **11138-66-2, Xanthan 11138-66-2D, Xanthan, deacetylated**
RL: BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(stoichiometry and conformation of **xanthan** in synergistic gelation with locust bean **gum** or konjac glucomannan)

L64 ANSWER 15 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1995:708226** HCAPLUS
DN **123:314302**
TI Synergistic interaction between **xanthan** and galactomannan isolated from Leucaena leucocephala de Wit
AU Pakdee, Parwadee; Tako, Masakuni; Yokohari, Tetsuo; Kinjyo, Kazuhiko; Hongo, Hujiya; Yaga, Shiryo
CS Coll. Agric., Univ. Ryukyus, Okinawa, 903-01, Japan
SO Oyo Toshitsu Kagaku (**1995**), 42(2), 105-13
CODEN: OTKAE3; ISSN: 1340-3494
PB Nippon Oyo Toshitsu Kagakkai
DT Journal
LA English
AB The non-Newtonian behavior and dynamics viscoelasticity of a series of aq. mixts. of **xanthan** and galactomannan isolated from Leucaena leucocephala de Wit were measured with a rheologiometer. At a concn. of 0.2% of total **gums**, gelation did not occur at room temp., but at a low temp. (0.degree.). A much stronger interaction was obsd. with mixts. contg. **deacetylated, deacylated**, or native **xanthan** than with depyruvated **xanthan**. The max. dynamic modulus was obtained when the ratio of **xanthan** to galactomannan was 2:1. The dynamics viscoelasticity parameters for mixts. with **deacetylated** and native **xanthan** decreased rapidly at temps. above 20 and 15.degree., resp. It was concluded that the side chains of the galactomannan mol. prevent intermol. interaction between **xanthan** and galactomannan. The results obtained support the interaction mechanism between **xanthan** and locust-bean **gum** previously proposed.
IT **11138-66-2, Xanthan**
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(synergistic interaction between **xanthan** and galactomannan isolated from leucaena leucocephala de wit)

L64 ANSWER 16 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1995:409865** HCAPLUS
DN **122:182878**
TI Studies on a viscous, gel-forming exopolysaccharide from Sphingomonas paucimobilis GS1
AU Ashtaputre, Anita A.; Shah, Avinash K.
CS Dep. Microbiol. Biotechnol. Cent., M. S. Univ. Baroda, Baroda, 390 002, India
SO Applied and Environmental Microbiology (**1995**), 61(3), 1159-62
CODEN: AEMIDF; ISSN: 0099-2240
PB American Society for Microbiology
DT Journal
LA English
AB A new strain, Sphingomonas paucimobilis GS1, accumulated 6.5 g of a highly viscous exopolysaccharide per L, using sucrose as a substrate. The anionic heteropolysaccharide contained the following, in grams per g: glucose, 0.7; galacturonic acid, 0.11; glucuronic acid, 0.07; and acetate,

0.12. The viscosity of the exopolysaccharide (4.0 g/L; 4,200 cP) was 5.5 times that of **xanthan gum** and was stable over a wide pH and temp. range as well as in the presence of NaCl. **Deacetylated** polymer produced a clear, agarlike, thermoreversible gel in the presence of cations. The gel strength of the modified polymer was four times that of agar and could withstand autoclaving.

L64 ANSWER 17 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1992:614877** HCAPLUS
DN **117:214877**
TI Synergistic interaction between **xanthan** and konjac glucomannan in aqueous media
AU Tako, Masakuni
CS Dep. Biosci. Biotechnol., Univ. Ryukyus, Nishihara, 903-01, Japan
SO Bioscience, Biotechnology, and Biochemistry (**1992**), 56(8), 1188-92
CODEN: BBBIEJ; ISSN: 0916-8451
DT Journal
LA English
AB The non-Newtonian behavior and dynamic modulus of a series of aq. mixts. of **xanthan** (native, **deacetylated**, depyruvated, and **deacylated**) and konjac glucomannan were measured with a rheogoniometer. The flow curves, at 55.degree., of a mixed soln. of **xanthan** and glucomannan showed plastic behavior at 0.1% total **gums**. At a concn. of 0.1% total **gums**, gelation occurred at room temp. A much stronger gel was obsd. in a mixt. with **deacetylated xanthan**, i.e., about twice as strong as that of a mixt. with depyruvated **xanthan**. The dynamic modulus of a mixt. of **deacylated xanthan** and glucomannan stayed at very small value in the presence of CaCl2 (6.8 mM) and urea (4.0 M). The side chains of **xanthan** were dominant in the interaction with konjac glucomannan mols.
IT **11138-66-2, Xanthan gum 11138-66-2D, Xanthan gum, deacylated**
RL: USES (Uses)
(synergistic interactions with konjac glucomannan in aq. media)

L64 ANSWER 18 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1992:61950** HCAPLUS
DN **116:61950**
TI Role of conformation and **acetylation** of **xanthan** on **xanthan**-guar interaction
AU Lopes, L.; Andrade, C. T.; Milas, M.; Rinaudo, M.
CS Inst. Macromol., Univ. Fed. Rio de Janeiro, Rio de Janeiro, 20000, Brazil
SO Carbohydrate Polymers (**1991**), Volume Date 1992, 17(2), 121-6
CODEN: CAPOD8; ISSN: 0144-8617
DT Journal
LA English
AB The synergistic effect obtained by mixing **xanthan** and guar solns. were examd. by low-shear viscosity measurements in relation to the temp. Native and **deacetylated xanthan** samples were used in mixts. in which the total polymer concns. were 1 g/L and 0.5 g/L. Gelation was obsd. for temps. <15.degree. for the native **xanthan** -guar system (wt. ratio 1/1) in 10-2 M NaCl and at 22-24.degree. for the same system in water; in this last case, it is known that the **xanthan** is in the disordered conformation. For a mixt. of **deacetylated xanthan**-guar, gelation was obsd. below 26.degree. in water. There was a stronger interaction between **deacetylated xanthan** and guar than native **xanthan** and guar because of enhanced xanthen-guar **gum** backbone assocn. in the former case.
IT **11138-66-2, Xanthan gum**
RL: PRP (Properties)

(**acetylation** and conformation of, guar **gum**-**xanthan gum** interactions in relation to)

L64 ANSWER 19 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1991:635120** HCAPLUS
DN **115:235120**
TI Synergistic interaction between **deacylated xanthan** and galactomannan
AU Tako, Masakuni
CS Dep. Agric. Chem., Univ. Ryukyus, Nishihara, 903-01, Japan
SO Journal of Carbohydrate Chemistry (**1991**), 10(4), 619-33
CODEN: JCACDM; ISSN: 0732-8303
DT Journal
LA English
AB The dynamic modulus and optical rotation of a mixed soln. of denatured **xanthan** (depyruvated and **deacylated**) and galactomannan (locust-bean **gum** and guar **gum**) were measured with a rheogoniometer and a polarimeter. Gelation occurred in a mixt. of native **xanthan** with locust-bean **gum** at a concn. of 0.2% total **gums** at room temp., but not with guar **gum**. A mixt. of **deacylated xanthan** and locust-bean **gum** showed the highest dynamic modulus, .apprx.3 times as strong as that of a mixt. with depyruvated **xanthan**. The dynamic modulus of a mixt. of **deacylated xanthan** and locust-bean **gum** stayed at very small value in the presence of CaCl2 (6.8 mM) and urea (4.0 M). Possible binding sites between **deacylated xanthan** and locust-bean **gum** mols. are proposed.
IT **11138-66-2D, Xanthan gum, deacylated**
RL: USES (Uses)
(galactomannan blends, gelation of, synergism in)

L64 ANSWER 20 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN 1991:536533 HCAPLUS
DN 115:136533
TI Hydrolysis of **xanthan** in dilute acid: effects on chemical composition, conformation, and intrinsic viscosity
AU Christensen, Bjoern E.; Smidsrod, Olav
CS Norweg. Biopolym. Lab., Univ. Trondheim, Trondheim, N-7034, Norway
SO Carbohydrate Research (1991), 214(1), 55-69
CODEN: CRBRAT; ISSN: 0008-6215
DT Journal
LA English
AB The polysaccharide **xanthan** has been depolymd. by mild acid hydrolysis (pH 1-4) at 80.degree.. The conformational state was varied from fully ordered to partially disordered by varying the ionic strength and pH. Hydrolysis occurred mainly in the side chains, with the terminal .beta.-mannose as the most susceptible unit, yielding a continuous series of modified **xanthans** from the intact "**polypentamer**" to the "polytetramer", while retaining a high mol. wt. Depolymn. of the glucan backbone was analyzed by monitoring the intrinsic viscosity. For ordered **xanthan** the calcd. changes in the degree of polymn. as a function of time deviate strongly from that expected for random depolymn. of a single-stranded, linear polymer, but the data are in qual. agreement with the behavior of such double-stranded polymers as DNA. The formational properties of partly hydrolyzed **xanthan** were investigated by optical rotation.
IT **11138-66-2, Xanthan**
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrolysis of, in dil. acid, conformation and intrinsic viscosity effect on)

L64 ANSWER 21 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1991:516704** HCAPLUS

DN **115:116704**
TI Synergistic interaction between **xanthan** and tara-bean **gum**
AU Tako, Masakuni
CS Dep. Agric. Chem., Univ. Ryukyus, Nishihara, 903-01, Japan
SO Carbohydrate Polymers (**1991**), 16(3), 239-52
CODEN: CAPOD8; ISSN: 0144-8617
DT Journal
LA English
AB The non-Newtonian behavior and dynamic viscoelasticity of a series of aq. mixts. of **xanthan** and tara-bean **gums** were measured with a rheogoniometer. At a concn. of 0.2% of the total **gum**, gelation did not occur at room temp., but rather at a low temp. (0.degree.). A much stronger interaction was obsd. with mixts. contg. **deacetylated, deacylated,** or native **xanthan** than with depyruvated **xanthan**. The max. dynamic modulus was obtained at a **xanthan**-tara-bean **gum** ratio of 1:2. The dynamic viscoelastic parameters for mixts. with **deacetylated** and **deacylated xanthan** decreased rapidly at temps. above 25 and 20.degree., resp. The side chains of the tara-bean **gum** mol. prevented an intermol. interaction between **xanthan** and tara-bean **gums**.
IT **11138-66-2, Xanthan gum**
RL: USES (Uses)
(tara-bean **gum** mixts., viscoelasticity of, synergism in)
IT **11138-66-2D, Xanthan gum, deacylated**
RL: USES (Uses)
(tara-bean **gum** mixts., viscoelasticity of, synergism in relation to)

L64 ANSWER 22 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1991:45353** HCAPLUS
DN **114:45353**
TI Influence of the **acetyl** substituent on the interaction of **xanthan** with plant polysaccharides. III. **Xanthan** -konjac mannan systems
AU Shatwell, Karolyn P.; Sutherland, Ian W.; Ross-Murphy, Simon B.; Dea, Iain C. M.
CS Dep. Microbiol., Sch. Agric., Edinburgh, EH9 3JG, UK
SO Carbohydrate Polymers (**1990**), 14(2), 131-47
CODEN: CAPOD8; ISSN: 0144-8617
DT Journal
LA English
AB A range of **xanthans** (Na+ salt form) with varying levels of **acetyl** and pyruvic acid substitution were prepd. by culturing different strains of Xanthomonas campestris and by chem. **deacetylation** and depyruvylation. Oscillatory-shear measurements were used to characterize the interaction between these polymers and konjac mannan in deionized water and the data was analyzed statistically. The majority of the polymers interacted to form a strong thermoreversible-gel network. **Xanthan** gelled with konjac mannan only at relatively high concns. compared with **xanthan**-locust bean **gum** (LBG) systems but the gels formed had significantly higher melting and setting temps. than **xanthan**-LBG gels of the same concn. The transition from the liq. to the gel state was also much sharper. The strength of the gels was heavily dependent on the level of **acetyl** substitution.
IT **11138-66-2, Xanthan gum**
RL: PRP (Properties)
(interaction of, with Konjac mannan, **acetyl** substitution effect on)

L64 ANSWER 23 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN **1991:45352** HCAPLUS
DN **114:45352**
TI Influence of the **acetyl** substituent on the interaction of **xanthan** with plant polysaccharides. II. **Xanthan**-guar **gum** systems
AU Shatwell, Karolyn P.; Sutherland, Ian W.; Ross-Murphy, Simon B.; Dea, Iain C. M.
CS Dep. Microbiol., Sch. Agric., Edinburgh, EH9 3JG, UK
SO Carbohydrate Polymers (**1990**), 14(2), 115-30
CODEN: CAPOD8; ISSN: 0144-8617
DT Journal
LA English
AB A range of **xanthans** (Na+ salt form) with varying levels of **acetyl** and pyruvic acid substitution were prepd. by culturing different strains of Xanthomonas campestris and by chem. **deacylation** and depyruvylation. Oscillatory-shear measurements were used to characterize the behavior of **xanthan** and guar **gum** alone, and of mixts. of the 2 in deionized water; the **xanthan** under these conditions was largely in the disordered form. The mech. spectra of the blends resembled an entanglement network system and showed some features characteristic of the individual components. However, evidence from both rheol. and chirooptical measurements indicated a possible weak interaction between some low-**acetyl** **xanthans** and guar.
IT **11138-66-2, Xanthan gum**
RL: PRP (Properties)
(interaction of, with guar **gum**, **acetyl** substitution effect on)

L64 ANSWER 24 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1990:631852** HCAPLUS
DN **113:231852**
TI The influence of **acetyl** and pyruvate substituents on the helix-coil transition behavior of **xanthan**
AU Shatwell, Karolyn P.; Sutherland, Ian W.; Dea, Iain C. M.; Ross-Murphy, Simon B.
CS Dep. Microbiol., Sch. Agric., Edinburgh, EH9 3JG, UK
SO Carbohydr. Res. (**1990**), 206(1), 87-103
CODEN: CRBRAT; ISSN: 0008-6215
DT Journal
LA English
AB **Xanthans** (Na+ salt form) having various contents of **acetyl** and pyruvic acid groups were prepd. by culturing different strains of Xanthomonas campestris and by **deacetylation** and depyruvylation. Optical rotation ([.alpha.]365) was used to characterize the helix-coil transition behavior of these polymers in deionized water. There were correlations between the **acetyl** and pyruvic acid contents and the mid-point temp. of the transition, between the pyruvic acid content and [.alpha.]365 in the high-temp.-plateau (coil) region of the curve, and between the content of pyruvic acid and the height of the transition. In deionized water, each of the polymers showed marked thermal hysteresis and a time-dependent fall in [.alpha.]365, at low temps. This behavior, which was attributed to kinetic factors, was eliminated by the addn. of NaCl. Salt also increased the melting temp. and reduced [.alpha.]365 in the low-temp.-plateau region of the curve in relation to the charge carried by the polymer. A high-pyruvate, low-**acetyl** **xanthan** exhibited unusual two-phase helix-coil transition behavior in the presence of salt.
IT **11138-66-2, Xanthan gum**
RL: PRP (Properties)
(helix-coil transition of, **acetyl** and pyruvate group effect on)

L64 ANSWER 25 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1990:424384** HCAPLUS
DN **113:24384**
TI Influence of **acetyl** and pyruvate substituents on the solution properties of **xanthan** polysaccharide
AU Shatwell, Karolyn P.; Sutherland, Ian W.; Ross-Murphy, Simon B.
CS Dep. Microbiol., Univ. Edinburgh, Edinburgh, EH9 3JG, UK
SO Int. J. Biol. Macromol. (**1990**), 12(2), 71-8
CODEN: IJBMDR; ISSN: 0141-8130
DT Journal
LA English
AB **Xanthan**, an exocellular polysaccharide produced by the plant pathogenic bacterium Xanthomonas campestris has been the subject of considerable interest in recent years because of its unusual rheol. properties in soln. (weak gel) and consequent range of application. The polymer consists of a cellulosic backbone with trisaccharide side chains linked to alternate backbone residues; **acetyl** and pyruvate substituents are carried in variable amts. on these side chains. A series of **xanthans** differing in the percentage of substituent groups and in mol. wt. range were prepd. by culturing a variety of different strains of X. campestris. All of the **xanthans** were characterized by a range of physicochem. techniques. In particular, the intrinsic viscosities at low shear rates, and at a range of ionic strengths, were detd. and the geometric persistence lengths evaluated by the Smidsrod-Haug method. Intensity light scattering measurements were made using the procedure of Coviello and co-workers to promote mol. dispersion. Despite significant differences in the **acetyl** and pyruvate contents, the mol. wt. vs mean square radius behavior of the samples did not differ substantially from each other or from those reported for other **xanthan** samples in the literature. The persistence length, detd. by the method of Schmidt et al. (120 .+-. 8 nm) was also, within exptl. error, the same for all the samples measured. These values differed considerably from those calcd. from the ionic strength dependence of intrinsic viscosity (the Smidsrod-Haug method) as reported by Tinland and Rinaudo and calcd. for these samples. This illustrates the limitations of the latter method when applied to systems where the electrostatic contribution to the persistence length is only a small fraction of the geometrical contribution. The values obtained from the light scattering measurements support other recent conclusions that the inherent stiffness of the **xanthan** macromol. is not greatly influenced by the pattern of **acyl** substitution.
IT **11138-66-2, Xanthan**
RL: PRP (Properties)
(soln. properties of, **acetyl** and pyruvate substituents effect on)

L64 ANSWER 26 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1989:595280** HCAPLUS
DN **111:195280**
TI Evidence for intramolecular associations in **xanthan** molecules in aqueous media
AU Tako, Masakuni; Nakamura, Sanehisa
CS Coll. Agric., Univ. Ryukyus, Nishihara, 903-01, Japan
SO Agric. Biol. Chem. (**1989**), 53(7), 1941-6
CODEN: ABCHA6; ISSN: 0002-1369
DT Journal
LA English
AB The non-Newtonian behavior and dynamic viscoelasticity of **deacylated xanthan** soln. were measured with a rheogoniometer. The flow curves for the **deacylated xanthan** at concns. below 0.5% approximated to shear-thinning behavior, and a plastic behavior above 0.8%. The apparent viscosity of a 0.5% soln. of **deacylated xanthan** increased with

increasing temp. up to 25, which was estd. to be a transition temp., then it decreased rapidly. The dynamic modulus of **deacylated xanthan** increased a little with increase of temp. up to 25 and 30.degree. in 0.8 and 1.0% solns., then it decreased rapidly with further increases of temp. The sp. rotation of **deacylated xanthan** stayed const. up to 25.degree., then it decreased rapidly with further increases in temp. Possible mode of intramol. assocn. between an alternate hydroxyl group at C(3) and the adjacent hemiacetal O atom of the D-glucosyl residues, and between the Me group of the **acetyl** residue and the adjacent hemiacetal O atom of the D-glucosyl residue were proposed.

IT **11138-66-2, Xanthan**
RL: PRP (Properties)
(intramol. assocn. in, in aq. media)

L64 ANSWER 27 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1988:473771** HCAPLUS
DN **109:73771**
TI Rheological properties of depyruvated **xanthan** in aqueous media
AU Tako, Masakuni; Nakamura, Sanehisa
CS Coll. Agric., Univ. Ryukyus, Nishihara, 903-01, Japan
SO Agric. Biol. Chem. (**1988**), 52(6), 1585-6
CODEN: ABCHA6; ISSN: 0002-1369
DT Journal
LA English
AB The viscosity and viscoelasticity of depyruvated **xanthan** in water were characterized. Depyruvated **xanthan** was found to have fewer intermol. assocns. than native or **deacetylated xanthans** that contained pyruvate.
IT **11138-66-2, Xanthan gum**
RL: PRP (Properties)
(viscoelasticity and viscosity of, in aq. soln., role of pyruvate interactions in)
IT **11138-66-2D, Xanthan gum**, depyruvated deriv.
RL: PRP (Properties)
(viscosity and viscoelasticity of, in aq. soln.)

L64 ANSWER 28 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN 1988:468188 HCAPLUS
DN 109:68188
TI Cloning and sequencing of xanthomonas campestris DNA encoding **xanthan gum** biosynthetic enzymes for use in manufacture of **xanthan gums** by recombinant bacteria
IN Capage, Michael A.; Doherty, Daniel H.; Betlach, Michael R.; Vanderslice, Rebecca W.
PA Getty Scientific Development Co., USA
SO PCT Int. Appl., 152 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI WO 8705938 | A1 | 19871008 | WO 1987-US604 | 19870324 |
| W: DK, FI, JP, NO | | | | |
| RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE | | | | |
| EP 326544 | A1 | 19890809 | EP 1987-902917 | 19870324 |
| EP 326544 | B1 | 19951004 | | |
| R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE | | | | |
| JP 01502555 | T2 | 19890907 | JP 1987-502275 | 19870324 |
| JP 2612583 | B2 | 19970521 | | |
| AT 128731 | E | 19951015 | AT 1987-902917 | 19870324 |
| CA 1338138 | A1 | 19960312 | CA 1987-532837 | 19870324 |

| | | | | | |
|---|---|---|---|---|---|
| | NO 8704878 | A | 19880125 | NO 1987-4878 | 19871123 |
| | US 5559015 | A | 19960924 | US 1994-352216 | 19941202 |
| PRAI | US 1986-842944 | | 19860324 | | |
| | US 1987-29530 | | 19870323 | | |
| | US 1986-844332 | | 19860326 | | |
| | WO 1987-US604 | | 19870324 | | |
| | US 1988-188687 | | 19880427 | | |
| | US 1989-333868 | | 19890403 | | |
| | US 1992-815615 | | 19920107 | | |

AB A gene cluster encoding enzymes necessary for the biosynthesis of **xanthan gum** is isolated from X. campestris and the DNA is sequenced. Plasmids contg. these genes can be transferred to bacteria which can be grown anaerobically and/or at temps. >30.degree. thus allowing a more economical manuf. of **xanthan gum**. The genes and the enzymic activity of the corresponding proteins were identified by Tn10 mutagenesis and subsequent anal. of lipid-linked radioactive precursors of **xanthan gum**. Plasmid pRK290-H336, which contains the gum gene cluster and has a broad host range, was conjugally transferred to Pseudomonas stutzeri (from Escherichia coli). The expression of one of the enzymes, Transferase III, was detd. by Western immunoblots to be almost equiv. to that in X. campestris itself.

IT **11138-66-2DP, Xanthan gum**, non-pyruvylated and/or **non-acetylated 11138-66-2P, Xanthan gum**
RL: PREP (Preparation)
(manuf. of, with recombinant bacteria, improved culture conditions in relation to)

L64 ANSWER 29 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1988:185289** HCAPLUS
DN **108:185289**
TI Manufacture of **xanthan gums** with altered **acetylation** and/or pyruvylation using Xanthomonas compestris mutants or lysates of these mutants
IN Doherty, Daniel H.; Ferber, Donna M.; Marrelli, John D.; Vanderslice, Rebecca W.
PA Getty Scientific Development Co., USA
SO PCT Int. Appl., 37 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 4

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE | |
|---|---|---|---|---|---|---|
| PI | WO 8705939 | A1 | 19871008 | WO 1987-US606 | 19870324 | <-- |
| | W: DK, FI, JP, NO | | | | | |
| | RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE | | | | | |
| | JP 63503198 | T2 | 19881124 | JP 1987-502340 | 19870324 | <-- |
| | JP 2559437 | B2 | 19961204 | | | |
| | EP 323952 | A1 | 19890719 | EP 1987-902919 | 19870324 | <-- |
| | EP 323952 | B1 | 19930811 | | | |
| | R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE | | | | | |
| | EP 511690 | A2 | 19921104 | EP 1992-111024 | 19870324 | <-- |
| | EP 511690 | A3 | 19921119 | | | |
| | EP 511690 | B1 | 19970730 | | | |
| | R: AT, BE, DE, FR, GB, IT, LU, NL, SE | | | | | |
| | AT 92965 | E | 19930815 | AT 1987-902919 | 19870324 | <-- |
| | EP 765939 | A2 | 19970402 | EP 1996-119095 | 19870324 | <-- |
| | EP 765939 | A3 | 19970514 | | | |
| | R: AT, BE, DE, FR, GB, IT, LU, NL, SE | | | | | |
| | JP 09176205 | A2 | 19970708 | JP 1996-70588 | 19870324 | <-- |
| | CA 1339113 | A1 | 19970729 | CA 1987-532838 | 19870324 | <-- |

| | | | | | |
|---|---|---|---|---|---|
| | AT 156190 | E | 19970815 | AT 1992-111024 | 19870324 <-- |
| | NO 8704846 | A | 19880125 | NO 1987-4846 | 19871120 <-- |
| | NO 172945 | B | 19930621 | | |
| | NO 172945 | C | 19930929 | | |
| | NO 9201787 | A | 19880125 | NO 1992-1787 | 19920506 <-- |
| | US 5514791 | A | 19960507 | US 1994-232416 | 19940425 <-- |
| | US 5948651 | A | 19990907 | US 1995-406804 | 19950320 <-- |
| | US 6316614 | B1 | 20011113 | US 1995-475823 | 19950607 <-- |
| | US 2002103370 | A1 | 20020801 | US 2001-986803 | 20011113 <-- |
| PRAI | US 1986-842945 | A | 19860324 <-- | | |
| | US 1986-844435 | A | 19860326 <-- | | |
| | US 1987-29090 | A | 19870323 <-- | | |
| | US 1985-762878 | A2 | 19850806 <-- | | |
| | EP 1987-902919 | A | 19870324 <-- | | |
| | EP 1992-111024 | A3 | 19870324 <-- | | |
| | JP 1987-502340 | A3 | 19870324 <-- | | |
| | NO 1987-4846 | A1 | 19870324 <-- | | |
| | WO 1987-US606 | W | 19870324 <-- | | |
| | US 1989-384621 | B2 | 19890725 <-- | | |
| | US 1990-566875 | B2 | 19900613 <-- | | |
| | US 1991-696732 | B1 | 19910507 <-- | | |
| | US 1992-928726 | B1 | 19920813 <-- | | |
| | US 1994-232416 | A3 | 19940425 <-- | | |
| | US 1995-475823 | A3 | 19950607 <-- | | |

AB X. campestris Mutants are prepd. which are deficient in an enzyme of the **xanthan gum** biosynthetic pathway (i.e. ketalase or **acetylase**) and are used to prep. **non-acetylated** and under- or non-pyruvylated **xanthan gum**. X. campestris X1006, contg. a Tn10-inactivated **acetylase**, and mutant X921, contg. a Tn10-inactivated ketalase, were grown overnight at 30.degree. in broth contg. 2% glucose. The **xanthan gums** were prepd. by pptn. with org. solvents from the cell-free medium. HPLC confirmed that the former produced **non-acetylated**, and the latter non-pyruvylated **xanthan gum**. The non-pyruvylated **gum** has low viscosity at fermn. temp. but viscosity essentially equiv. to wild-type **gum** at higher temp. (80.degree.). The **non-acetylated gum** produces solns. of greater viscosity than either wild-type or com. available, chem.-**deacetylated xanthan gum** at comparable concns.

IT **11138-66-2DP, non-acetylated** or under- or non-pyruvylated
RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)
(manuf. of, by Xanthomonas campestris mutants)

L64 ANSWER 30 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1988:167837** HCAPLUS
DN **108:167837**
TI Influence of **acetyl** and pyruvate contents on rheological properties of **xanthan** in dilute solution
AU Callet, Francoise; Milas, Michel; Rinaudo, Marguerite
CS Cent. Rech. Macromol. Veg., Univ. Sci., Technol. Med. Grenoble, Saint-Martin d'Heres, 38402, Fr.
SO Int. J. Biol. Macromol. (**1987**), 9(5), 291-3
CODEN: IJBMDR; ISSN: 0141-8130
DT Journal
LA English
AB The role of **acetyl** and pyruvate groups on rheol. properties of **xanthan** in dil. solns. was investigated. For this purpose, a series of **xanthan** derivs. were prepd. by chem. hydrolysis from the same original sample, i.e. **acetyl**-free, pyruvate-free, **acetyl** and pyruvate-free **xanthans**. Conformational

transitions of the 4 samples (native and modified **xanthans**) were followed by measuring optical rotation as a function of temp. Values of midpoint transition (Tm) thus obtained indicate that **acetyl** groups have a stabilizing effect on the ordered form of **xanthan**, whereas pyruvate groups have an opposite effect. After partial depolymn. by sonication, viscosities of the 4 samples were studied as a function of polymer concn. (below overlap concn. C*) and mol. wt. Unique curves were obtained for the abs. viscosity [.eta.] vs. mol. wt. and specific viscosity vs. the overlap parameter C[.eta.] for the 4 samples. This result shows that **acetyl** and pyruvate contents have no influence either on **xanthan** dil. soln. viscosity or on its intrinsic viscosity at a given mol. wt.

IT **11138-66-2D, deacetylated** and depyruvylated
RL: PRP (Properties)
(rheol. behavior and conformation of)

IT **11138-66-2, Xanthan**
RL: PRP (Properties)
(rheol. properties and conformation of, **acetyl** and pyruvate groups effect on)

L64 ANSWER 31 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1986:572914** HCAPLUS
DN **105:172914**
TI D-Mannose-specific interaction between **xanthan** and D-galacto-D-mannan
AU Tako, Masakuni; Nakamura, Sanehisa
CS Dep. Agric. Chem., Univ. Ryukyus, Okinawa, 903-01, Japan
SO FEBS Lett. (**1986**), 204(1), 33-6
CODEN: FEBLAL; ISSN: 0014-5793
DT Journal
LA English
AB A gelation occurred in a mixed soln. of **xanthan** and locust-bean **gum** at room temp.; in contrast, gelation did not occur in a soln. of **xanthan** and guar **gum**. The max. dynamic modulus was obtained when the mixing ratio of **xanthan** and locust-bean **gum** was 1:2 at 0.2% total **gums**. A mixt. of **deacetylated xanthan** and locust-bean **gum** showed the highest dynamic modulus, about twice that of the mixt. of native **xanthan**. The intermol. interaction between **xanthan** and locust-bean **gum** might occur between the side chains of the former and back-bone of the latter mols. in a lock-and-key arrangement.

IT **11138-66-2**
RL: PRP (Properties)
(interaction of, with polysaccharide **gums**)

L64 ANSWER 32 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1986:535845** HCAPLUS
DN **105:135845**
TI Reactions in dispersions of different phases
IN Fujishige, Norinaga; Numajiri, Rikio; Iegi, Masahiro
PA Agency of Industrial Sciences and Technology, Japan; Kashima Oil Co., Ltd.
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI JP 61120802 | A2 | 19860607 | JP 1984-241791 | 19841116 <-- |
| JP 01033481 | B4 | 19890713 | | |

AB Polymers (100 parts) forming viscous aq. solns. are dispersed or dissolved in >100 parts org. polar solvents and 20-300 parts water, dispersed in

nonpolar solvents to form water-in-oil-type emulsions, and allowed to react with reagents. The reactions are alkoxylation, crosslinking, **deacetylation**, acetalization or ketalization, and hydrolysis. Thus, **xanthan gum** reacted with epichlorohydrin to give a product having degree of substitution 2.0.

IT **11138-66-2**
RL: RCT (Reactant)
(reaction of, with epichlorohydrin, in water-in-oil emulsions)

L64 ANSWER 33 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1985:202772** HCAPLUS
DN **102:202772**
TI Synergistic interaction between **xanthan** and guar **gum**
AU Tako, Masakuni; Nakamura, Sanehisa
CS Dep. Agric. Chem., Univ. Ryukyus, Okinawa, 903-01, Japan
SO Carbohydr. Res. (**1985**), 138(2), 207-13
CODEN: CRBRAT; ISSN: 0008-6215
DT Journal
LA English
AB The non-Newtonian behavior and dynamic viscoelasticity of a series of aq. mixts. of **xanthan** [**11138-66-2**] and guar **gum** [9000-30-0] were measured with a rheogoniometer. At 0.2% of total **gums**, gelation did not occur at room temp. but occurred at a low temp. (0.degree.). A much stronger interaction was obsd. with a mixt. of **deacetylated xanthan** than that with native **xanthan**. The max. dynamic modulus was obtained when the ratio of **xanthan** to guar **gum** was 2:1. The transition temps. of dynamic viscoelasticity for mixts. with native and **deacetylated xanthan** were obsd. at 25 and 30.degree., resp. Apparently, the side chains of the guar **gum** mol. prevent an intermol. interaction with the side chains of the **xanthan** mol. An intermol. interaction between **xanthan** and guar **gum** at low temp. might be promoted between the periphery of the side chains of the **xanthan** mol. and the backbone of the guar **gum** mol. and dissocn. takes place at the transition temp.
IT **11138-66-2**
RL: BIOL (Biological study)
(gelation and rheol. of guar **gum** with)

L64 ANSWER 34 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1985:94471** HCAPLUS
DN **102:94471**
TI Rheological aspects of the intermolecular interaction between **xanthan** and locust bean **gum** in aqueous media
AU Tako, Masakuni; Asato, Atsushi; Nakamura, Sanehisa
CS Fac. Agric., Univ. Ryukyus, Okinawa, 903-01, Japan
SO Agric. Biol. Chem. (**1984**), 48(12), 2995-3000
CODEN: ABCHA6; ISSN: 0002-1369
DT Journal
LA English
AB Non-Newtonian behavior and dynamic viscoelasticity of a series of aq. mixed solns. of **xanthan** [**11138-66-2**] and locust bean **gum** [9000-40-2] were measured using a rheogoniometer, and the rheol. properties were analyzed. A gelation occurred in the mixt. at 0.2% total **gums** at room temp. The flow curves of the mixt. solns. showed a yield value and approximated to plastic behavior at 50.degree.. The max. dynamic modulus was obtained when the mixing ratio of **xanthan** to locust bean **gum** was 1:2, while comparable high moduli were also obtained in the mixing ratio of 1:3 or 1:4. A mixt. of **deacetylated xanthan** and locust bean **gum** showed the highest dynamic modulus, about 2 times that of the mixt. of native or Na-form **xanthan**. The dynamic modulus of the mixts. decreased rapidly with increasing temp. In contrast, the dynamic

viscosity was scarcely changed during increasing temp. in the mixing ratio of 2:1. The dynamic modulus was decreased by addn. of urea (4.0M), NaCl (0.1%), and MgCl2. Intermol. interaction between **xanthan** and locust bean **gum** might occur between the side chains of the former and backbone of the latter, as in a lock-and-key effect.

IT **11138-66-2**
RL: BIOL (Biological study)
(rheol. of, locust bean **gum** effect on)

L64 ANSWER 35 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1985:77399** HCAPLUS
DN **102:77399**
TI Rheological properties of **deacetylated xanthan** in aqueous media
AU Tako, Masakuni; Nakamura, Sanehisa
CS Fac. Agric., Univ. Ryukyus, Okinawa, 903-01, Japan
SO Agric. Biol. Chem. (**1984**), 48(12), 2987-93
CODEN: ABCHA6; ISSN: 0002-1369
DT Journal
LA English
AB Flow properties of aq. **deacetylated xanthan** **gum** solns. could be approximated to pseudoplastic behavior at <0.1% but to plastic behavior above 0.3%. The flow indexes in the power law for the **deacetylated xanthan** were somewhat different at various concns. The apparent viscosity of **deacetylated xanthan** decreased with increasing temp. at relatively low concns. from 0.1 to 0.5%, however, it increased with increasing temp., showed a max. value at 40.degree., and decreased gradually at 1.0%. Compared with native **xanthan**, **deacetylated** material showed higher dynamic viscoelasticity at high concns. The dynamic viscoelasticity of **deacetylated** **xanthan** decreased with increasing temp. at various concns. The dynamic viscoelasticity of **deacetylated xanthan** was decreased by addn. of urea (4.0M). This suggests that acetate residues, which are attached to the inner mannose residues of the side chains, contribute to the intramol. assocn., and that the side chains of **xanthan** become more flexible after **deacetylation**.
IT **11138-66-2D, deacetylated**
RL: BIOL (Biological study)
(rheol. of)

L64 ANSWER 36 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1984:612999** HCAPLUS
DN **101:212999**
TI Hygroscopic modified polysaccharides
PA Agency of Industrial Sciences and Technology, Japan; Kashima Oil Co., Ltd.
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI JP 59142201 | A2 | 19840815 | JP 1983-16226 | 19830204 <-- |
| JP 63022201 | B4 | 19880511 | | |

AB Polysaccharides **deacetylated** with an alkyl alcoholate or NH3 are hygroscopic. Thus, 0.12 g Na was treated with 100 mL MeOH to give 1.5 g Na methylate [124-41-4] which was reacted with **xanthan** **gum** (I) [**11138-66-2**] to give modified I with good hygroscopicity.
IT **11138-66-2**
RL: RCT (Reactant)
(**deacetylation** of, with sodium methylate or ammonia)

IT **11138-66-2DP, deacetylated**
RL: PREP (Preparation)
(hygroscopic, manuf. of)

L64 ANSWER 37 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1983:74177** HCAPLUS
DN **98:74177**
TI Modified **xanthan** - its preparation and viscosity
AU Bradshaw, I. J.; Nisbet, B. A.; Kerr, M. H.; Sutherland, I. W.
CS Dep. Microbiol., Edinburgh Univ., Edinburgh, EH9 3JG, UK
SO Carbohydr. Polym. (**1983**), 3(1), 23-38
CODEN: CAPOD8
DT Journal
LA English
AB The hydrolysis of **xanthan gum** (I) [**11138-66-2**] in soln. with (0.5%; 10 mL) 4-5 mM trifluoroacetic acid for 90 min at 100.degree. resulted in optimum removal of pyruvic acid acetal and **acetyl** groups, and under these conditions no low mol. wt. carbohydrate-contg. material was released. A comparison of the viscosity of native and modified I in H2O and 1% KCl showed that depyruvylation and **deacetylation** have little effect on soln. viscosity of shear rates between 8.8 and 88.3 s-1.
IT **11138-66-2**
RL: USES (Uses)
(**deacetylation** and depyruvylation of, with trifluoracetic acid)
IT **11138-66-2D, deacetylated**, depyruvylated
RL: PRP (Properties)
(soln. viscosity of)

L64 ANSWER 38 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1980:551994** HCAPLUS
DN **93:151994**
TI **Deacetylated** borate-biosynthetic **gum** compositions
IN Cottrell, Ian W.; Racciato, Joseph S.
PA Merck and Co., Inc., USA
SO U.S., 4 pp. Cont.-in-part of U.S. Ser. No. 891,575, abandoned.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI US 4214912 | A | 19800729 | US 1979-45493 | 19790604 <-- |
| PRAI US 1978-871279 | | 19780123 <-- | | |
| US 1978-891575 | | 19780330 <-- | | |

AB Treatment of **xanthan gum** (I) with borax (II) in the presence of alkalies gives product with enhanced dispersibility in H2O. Thus, a mixt. of 6 g II, 100 mL H2O, and .apprx.19 L beer contg. .apprx.2.5% I was added to 150 mL 5 N NaOH and stirred for 4 h at 40.degree. to give **deacetylated** I, a 1% soln. of which showed a viscosity of 1110 cP at pH 8.0 after storage of 2 h.
IT **11138-66-2D, deacetylated**
RL: USES (Uses)
(borax-treated, with high dispersibility in water)

L64 ANSWER 39 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN **1979:591696** HCAPLUS
DN **91:191696**
TI Gelled compositions based on galactomannans and **xanthan**
PA CECA S. A., Fr.
SO Fr. Demande, 25 pp.
CODEN: FRXXBL

DT Patent
LA French
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | FR 2402678 | A1 | 19790406 | FR 1977-27467 | 19770912 <-- |
| | FR 2402678 | B1 | 19800321 | | |
| | EP 1192 | A1 | 19790321 | EP 1978-400084 | 19780830 <-- |
| | EP 1192 | B1 | 19811223 | | |
| | R: CH, DE, GB, NL | | | | |
| | US 4369125 | A | 19830118 | US 1980-161322 | 19800620 <-- |
| PRAI | FR 1977-27467 | | 19770912 <-- | | |
| | US 1978-935944 | | 19780825 <-- | | |

AB Mixts. of **deacetylated xanthan gum** (I) [**11138-66-2**] (totally or partially **deacetylated**) with 1 or more galactomannan (II) [11078-30-1] at I/II ratios of 15:85 to 9:1 formed stronger edible gels and thickening agents than did similar mixts. contg. regular (**acetylated**) **xanthan gum**. For example a I-carob **gum** [9000-40-2] mixt. at 30:70 gave a gel with rigidity .apprx.75% greater and cohesion .apprx.70% greater than of a gel prepd. with regular (**acetylated**) **xanthan gum**. The gel strength of gels contg. I was affected less by salts than were those contg. regular **xanthan gum**.

IT **11138-66-2D, deacetylated**
RL: BIOL (Biological study)
(gels contg. galactomannan and)

L64 ANSWER 40 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN 1979:543066 HCAPLUS
DN 91:143066
TI Xanthomonas biopolymer for use in the displacement of oil from partially-exhausted deposits
IN Wernau, William Charles
PA Pfizer Inc., USA
SO Ger. Offen., 21 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | DE 2848894 | A1 | 19790517 | DE 1978-2848894 | 19781110 |
| | DE 2848894 | C2 | 19830203 | | |
| | US 4296203 | A | 19811020 | US 1977-851757 | 19771115 |
| | DK 7803891 | A | 19790516 | DK 1978-3891 | 19780904 |
| | CA 1113875 | A1 | 19811208 | CA 1978-314034 | 19781024 |
| | BE 871955 | A1 | 19790514 | BE 1978-191678 | 19781113 |
| | GB 2008600 | A | 19790606 | GB 1978-44319 | 19781113 |
| | GB 2008600 | B2 | 19820324 | | |
| | BR 7807431 | A | 19790724 | BR 1978-7431 | 19781113 |
| | NL 7811234 | A | 19790517 | NL 1978-11234 | 19781114 |
| | FR 2408653 | A1 | 19790608 | FR 1978-32084 | 19781114 |
| | FR 2408653 | B1 | 19840427 | | |
| | JP 54145290 | A2 | 19791113 | JP 1978-140398 | 19781114 |
| | JP 56028921 | B4 | 19810704 | | |
| | JP 56085292 | A2 | 19810711 | JP 1980-151313 | 19801028 |
| | JP 57022321 | B4 | 19820512 | | |
| | JP 56085293 | A2 | 19810711 | JP 1980-151314 | 19801028 |
| | JP 57022322 | B4 | 19820512 | | |
| | JP 56085294 | A2 | 19810711 | JP 1980-151315 | 19801028 |
| | JP 57022323 | B4 | 19820512 | | |
| | JP 56085284 | A2 | 19810711 | JP 1980-151316 | 19801028 |
| | US 4340678 | A | 19820720 | US 1981-222388 | 19810105 |

US 4352741 A 19821005 US 1981-269681 19810602
PRAI US 1977-851757 19771115
AB The displacement medium is a pyruvate-free **xanthan gum** (I) [**11138-66-2**] slurry built up by aerobic fermn. of Xanthomonas campestris (ATCC 31313) in an aq. culture contg. a hydrocarbon and a source of N and trace elements until the slurry contains 100 ppm I. The slurry has a reduced ionic nature that can be further reduced by **deacetylation**, thus minimizing problems with Ca2+ in the underground formation. The slurry is used in injection solns. contg. .gtoreq.7% salt for displacement of oil from partially exhausted formations.
IT **11138-66-2**
RL: USES (Uses)
(slurries, displacement media, for enhanced petroleum recovery)

=> fil wpix
FILE 'WPIX' ENTERED AT 08:55:27 ON 10 OCT 2002
COPYRIGHT (C) 2002 THOMSON DERWENT

FILE LAST UPDATED: 07 OCT 2002 <20021007/UP>
MOST RECENT DERWENT UPDATE 200264 <200264/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

>>> SLART (Simultaneous Left and Right Truncation) is now available in the /ABEX field. An additional search field /BIX is also provided which comprises both /BI and /ABEX <<<

>>> The BATCH option for structure searches has been enabled in WPINDEX/WPIDS and WPIX <<<

>>> PATENT IMAGES AVAILABLE FOR PRINT AND DISPLAY <<<

>>> FOR DETAILS OF THE PATENTS COVERED IN CURRENT UPDATES, SEE http://www.derwent.com/dwpi/updates/dwpicov/index.html <<<

>>> FOR A COPY OF THE DERWENT WORLD PATENTS INDEX STN USER GUIDE, PLEASE VISIT:
http://www.stn-international.de/training_center/patents/stn_guide.pdf <<<

>>> FOR INFORMATION ON ALL DERWENT WORLD PATENTS INDEX USER GUIDES, PLEASE VISIT:
http://www.derwent.com/userguides/dwpi_guide.html <<<

=> d all abeq tech abex tot

L77 ANSWER 1 OF 8 WPIX (C) 2002 THOMSON DERWENT
AN 1999-132209 [11] WPIX
DNC C1999-038740
TI Fluids for oil mining - comprises of a **de-acetylated xanthane gum** and a compound increasing the medium ionic strength.
DC A11 A14 A97 E37 H01 Q49
IN **LANGLOIS, B**
PA (RHOD) RHODIA CHIM
CYC 82
PI WO 9903948 A1 19990128 (199911)* EN 33p C09K007-02
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW

FR 2766203 A1 19990122 (199911) C09K007-02
AU 9887343 A 19990210 (199925) C09K007-02
NO 2000000208 A 20000317 (200025) C09K000-00
EP 998540 A1 20000510 (200027) FR C09K007-02
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
CN 1267320 A 20000920 (200063) C09K007-02
MX 2000000600 A1 20001001 (200158) C08B037-00

ADT WO 9903948 A1 WO 1998-FR1514 19980710; FR 2766203 A1 FR 1997-9087 19970717; AU 9887343 A AU 1998-87343 19980710; NO 2000000208 A WO 1998-FR1514 19980710, NO 2000-208 20000114; EP 998540 A1 EP 1998-938729 19980710, WO 1998-FR1514 19980710; CN 1267320 A CN 1998-808299 19980710; MX 2000000600 A1 MX 2000-600 20000117

FDT AU 9887343 A Based on WO 9903948; EP 998540 A1 Based on WO 9903948

PRAI FR 1997-9087 19970717

IC ICM C08B037-00; C09K000-00; C09K007-02
ICS E21B021-06; E21B043-22; E21B043-25

AB WO 9903948 A UPAB: 19990316
Fluid free of guar for oil mining is claimed. It consists of **de-acetylated xanthane gum**, in a **polypentamer** form and a compound increasing the medium ionic strength. It further comprises a filtrate reducer and a fluidifying or dispersing agent with a concentration of 0-1 %, an oxygen sensor with a concentration of 0-0.25 %, all with respect to the total weight of the fluid.
USE - As a filtrate for oil mining.
Dwg.0/1

FS CPI GMPI
FA AB; DCN
MC CPI: A10-E09; A12-W10A; E05-A; E05-B01; E31; E33; E34; H01-B06

L77 ANSWER 2 OF 8 WPIX (C) 2002 THOMSON DERWENT
AN 1998-120375 [11] WPIX
CR 1998-110557 [10]; 1998-120374 [11]
DNC C1998-039555
TI Composition of amorphous cellulose nano-fibrils - used as viscosity modifier in food, cosmetic and detergent products and building materials, and in fluids used in oil extraction.
DC A11 A96 A97 D13 D21 D25 E19 H01 L02
IN BENCHIMOL, J; CANTIANI, R; GUERIN, G; SENECHAL, A; VINCENT, I; **LANGLOIS, B**
PA (RHOD) RHODIA CHIM; (RHON) RHONE-POULENC CHIM; (BENC-I) BENCHIMOL J; (CANT-I) CANTIANI R; (GUER-I) GUERIN G; (SENE-I) SENECHAL A; (VINC-I) VINCENT I
CYC 69
PI WO 9802487 A1 19980122 (199811)* FR 35p C08L001-02
RW: AT BE CH DE DK EA ES FI FR GB GH GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW
W: AL AU BA BB BG BR CA CN CU CZ EE GE HU IL IS JP KP KR LC LK LR LT LV MG MK MN MX NO NZ PL RO RU SG SI SK TR TT UA US UZ VN
FR 2751659 A1 19980130 (199812) 19p C08L001-00
AU 9736974 A 19980209 (199823) C08L001-02
EP 912634 A1 19990506 (199922) FR C08L001-02
R: AT BE CH DE DK ES FR GB GR IE IT LI NL PT SE
SK 9900034 A3 19990712 (199939) C08L001-02
BR 9710338 A 19990817 (199954) C08L001-02
HU 9903102 A2 20000228 (200020) C08L001-02
JP 2000503704 W 20000328 (200026) 41p C08L001-02
AU 723465 B 20000824 (200045) C08L001-02
US 6224663 B1 20010501 (200126) C08L001-02
US 2001004869 A1 20010628 (200138) D21C009-00
JP 3247391 B2 20020115 (200206) 14p C08L001-02

ADT WO 9802487 A1 WO 1997-FR1291 19970711; FR 2751659 A1 FR 1996-9062 19960715; AU 9736974 A AU 1997-36974 19970711; EP 912634 A1 EP 1997-933723

19970711, WO 1997-FR1291 19970711; SK 9900034 A3 WO 1997-FR1291 19970711, SK 1999-34 19970711; BR 9710338 A BR 1997-10338 19970711, WO 1997-FR1291 19970711; HU 9903102 A2 WO 1997-FR1291 19970711, HU 1999-3102 19970711; JP 2000503704 W WO 1997-FR1291 19970711, JP 1998-505682 19970711; AU 723465 B AU 1997-36974 19970711, WO 1997-FR1291 19970711; US 6224663 B1 WO 1997-FR1291 19970711, US 1999-214774 19990908; US 2001004869 A1 Div ex US 1999-214774 19990908, US 2001-782802 20010214; JP 3247391 B2 WO 1997-FR1291 19970711, JP 1998-505682 19970711

FDT AU 9736974 A Based on WO 9802487; EP 912634 A1 Based on WO 9802487; BR 9710338 A Based on WO 9802487; HU 9903102 A2 Based on WO 9802487; JP 2000503704 W Based on WO 9802487; AU 723465 B Previous Publ. AU 9736974, Based on WO 9802487; US 6224663 B1 Based on WO 9802487; US 2001004869 A1 Div ex US 6224663; JP 3247391 B2 Previous Publ. JP 200003704, Based on WO 9802487

PRAI FR 1996-11779 19960927; FR 1996-9062 19960715

IC ICM C08L001-00; C08L001-02; D21C009-00
ICS A23L001-00; A23L001-03; A61K007-00; C04B024-00; C04B024-38; C09D101-02; C09K007-00; C11D001-68; C11D003-00; C11D003-22; C11D003-382

ICI C08L001-02, C08L001:28; C08L001-02, C08L005:00; C08L001-02, C08L029:04; C08L001-02; C08L001:28; C08L001-02, C08L001:28; C08L001-02, C08L001:28; C08L001-02, C08L005:00; C08L001-02, C08L029:04

AB WO 9802487 A UPAB: 20010711

The composition comprises essentially amorphous cellulose nano-fibrils; at least one additive chosen from carboxylated cellulose having degree of substitution > 0.95, a natural polysaccharide, or a polyol; and optionally at least one co-additive. The content of additive and co-additive is at most 30 wt.% based on total weight of nano-fibrils, additive and any co-additive(s).

Also claimed is a suspension of cellulose nano-fibrils obtained by dispersing the above composition. The suspension preferably has a rheo-fluidising type rheological profile.

USE - Carboxylated cellulose and optionally co-additives, with amorphous cellulose nano-fibrils are used to preserve the rheo-fluidising rheological profile of a suspension of amorphous cellulose nano-fibrils having undergone a drying stage. The compositions and suspensions are used as additives in cosmetic, detergent and food formulations, in formulations for use in building, and in fluids used in oil extraction.

Dwg.0/0

FS CPI
FA AB; DCN
MC CPI: A03-A04A; A12-R01; A12-V04; A12-W09; A12-W12A; A12-W12B; D03-H01; D03-H01J; D08-B; D11-B; E10-D03C; H01-B06; L02-D

L77 ANSWER 3 OF 8 WPIX (C) 2002 THOMSON DERWENT
AN 1997-503082 [46] WPIX
DNC C1997-160017
TI Preparation of aqueous tar suspo-emulsion for cleaning tar/sludge - comprises mixing viscous tar composition, inorganic solids and water and surface active agent and thickening water-soluble polymer.
DC A14 A25 A97 D25 E19 H08
IN GUERIN, G; HILL, D P; **LANGLOIS, B**; PRUITT, T E; SANDERS, F L; PRUIT, T E; HILL, P D
PA (RHON) RHONE-POULENC CHIM; (RHON) RHONE-POULENC INC; (RHOD) RHODIA CHIMIE; (RHOD) RHODIA INC; (RHOD) RHODIA CHIM
CYC 71
PI WO 9736970 A2 19971009 (199746)* EN 34p C10C000-00
RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE HU IL IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG UZ VN
AU 9738776 A 19971022 (199808) C10C001-00
NO 9803791 A 19981019 (199901) C10C001-00

EP 882110 A2 19981209 (199902) EN C10C001-00
R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
CZ 9802595 A3 19990317 (199917) C10L001-32
SK 9801138 A3 19990413 (199924) C10L001-32
CN 1213394 A 19990407 (199932) C10L001-32
NZ 331467 A 20000128 (200015) C10C003-00
BR 9708447 A 20000523 (200035) C10C001-00
HU 2000000245 A2 20000628 (200039) C10L001-00
AU 723738 B 20000907 (200048) C10C001-00
MX 9806718 A1 19990401 (200055) C10L001-32
KR 99087075 A 19991215 (200056) C10L001-32
US 6197837 B1 20010306 (200115) B01F017-12
US 6245216 B1 20010612 (200135) C10G017-00
JP 2001527587 W 20011225 (200204) 39p C10C001-00
EP 1191085 A1 20020327 (200229) EN C10L001-32
R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
RU 2182589 C2 20020520 (200249) C10C003-02
EP 882110 B1 20020911 (200264) EN C10C001-00
R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

ADT WO 9736970 A2 WO 1997-US3793 19970220; AU 9738776 A AU 1997-38776 19970220; NO 9803791 A WO 1997-US3793 19970220, NO 1998-3791 19980819; EP 882110 A2 EP 1997-936007 19970220, WO 1997-US3793 19970220; CZ 9802595 A3 WO 1997-US3793 19970220, CZ 1998-2595 19970220; SK 9801138 A3 WO 1997-US3793 19970220, SK 1998-1138 19970220; CN 1213394 A CN 1997-192985 19970220; NZ 331467 A NZ 1997-331467 19970220; BR 9708447 A BR 1997-8447 19970220, WO 1997-US3793 19970220; HU 2000000245 A2 WO 1997-US3793 19970220, HU 2000-245 19970220; AU 723738 B AU 1997-38776 19970220; MX 9806718 A1 MX 1998-6718 19980819; KR 99087075 A WO 1997-US3793 19970220, KR 1998-706461 19980819; US 6197837 B1 Provisional US 1996-11977P 19960220, Div ex US 1997-802742 19970220, US 1999-263641 19990305; US 6245216 B1 Provisional US 1996-11977P 19960220, US 1997-802742 19970220; JP 2001527587 W JP 1997-531240 19970220, WO 1997-US3793 19970220; EP 1191085 A1 Div ex EP 1997-936007 19970220, EP 2001-203174 19970220; RU 2182589 C2 WO 1997-US3793 19970220, RU 1998-117465 19970220; EP 882110 B1 EP 1997-936007 19970220, WO 1997-US3793 19970220, Related to EP 2001-203174 19970220

FDT AU 9738776 A Based on WO 9736970; EP 882110 A2 Based on WO 9736970; CZ 9802595 A3 Based on WO 9736970; BR 9708447 A Based on WO 9736970; HU 2000000245 A2 Based on WO 9736970; AU 723738 B Previous Publ. AU 9738776, Based on WO 9736970; KR 99087075 A Based on WO 9736970; JP 2001527587 W Based on WO 9736970; EP 1191085 A1 Div ex EP 882110; RU 2182589 C2 Based on WO 9736970; EP 882110 B1 Related to EP 1191085, Based on WO 9736970

PRAI US 1997-802742 19970220; US 1996-11977P 19960220; US 1996-611977 19960220; US 1999-263641 19990305

IC ICM B01F017-12; C10C000-00; C10C001-00; C10C003-00; C10C003-02; C10G017-00; C10L001-00; C10L001-32
ICS B01F003-14; B08B003-04; B08B009-093; C01B017-74; C08L095-00; C10G017-10; C10G075-00; C23G001-02; C23G001-24

AB WO 9736970 A UPAB: 19990224
The preparation of an aqueous tar suspoemulsion involves mixing a mixture comprising: (a) a viscous tar composition of tar(s), inorganic solids and optionally water, (b) water and (c) at least one surface-active agent exhibiting an HLB of at least 10 and optionally at least one thickening water-soluble polymer with mol. wt. more than 10,000. The relative amounts of water, surface-active agent and polymer are such that the viscosity of the mixture is the same as or more than 0.1 of the viscosity of the tar. A process for fluidizing tars/sludges or cleaning tars/sludges from containers/vessels involves contacting the tar/sludge with an inorganic acid and a surfactant.

USE - For use in fluidizing tars and sludges especially in cleaning tars from reaction vessels, process equipment, transport container and storage tanks.

ADVANTAGE - Residues can be conditioned in fluid form which can be

diluted with water or with acid and which is stable on storage. Does not require any physical alteration to the tank to remove the tar/sludge. Tar/sludge can be easily recovered and the sulphuric acid can be regenerated.
Dwg.0/0
FS CPI
FA AB; DCN
MC CPI: A03-C03; A07-B04; A08-S; A11-A03; A11-C; A12-W12B; D11-A12; D11-D01B; E05-G09C; E05-G09D; E07-D09C; E10-A03; E10-A09A; E10-A09B4; E10-A09B8; E10-A22; E10-B02D6; E10-B03B; E10-B04A2; E10-C04F; E10-D03C; E10-E04M1; E10-E04M3; H08-E05

L77 ANSWER 4 OF 8 WPIX (C) 2002 THOMSON DERWENT
AN **1997-086653** [08] WPIX
DNN **N1997-071447** DNC **C1997-028131**
TI Viscous aq. particle transport fluid - comprising water, guar gum and a **non-acetylated** but otherwise unmodified **xanthan** heteropolysaccharide polymer..
DC A11 A97 D16 H01 Q49
IN HODGE, R M
PA (DUPO) DU PONT DE NEMOURS & CO E I
CYC 1
PI US 5591699 A 19970107 (199708)* 9p E21B043-26
ADT US 5591699 A CIP of US 1993-21943 19930224, US 1994-360558 19941221
PRAI US 1994-360558 19941221; US 1993-21943 19930224
IC ICM E21B043-26
AB US 5591699 A UPAB: 19970220
A viscous aq. particle transport fluid comprises: a) water; b) 0.08-1.0 wt.% of guar gum, and c) 0.02-0.5 wt.% of a **non-acetylated** but otherwise unmodified **xanthan** heteropolysaccharide polymer of formula (I): M = H ion of an alkali metal ion and where the ratio of guar gum to the amt. of **xanthan** heteropolysaccharide polymer used is 2:1 to 5:1.
USE - The transport fluid is used as a drilling fluid, a fracturing fluid or as a filter structure emplacement fluid in mines.
ADVANTAGE - The **xanthan** heteropolysaccharide polymer imparts viscosity to the aq. particle transport fluid.
Dwg.0/2
FS CPI GMPI
FA AB; GI
MC CPI: A03-A00A; A03-C02; A12-W10A; D05-C08; H01-B06A; H01-C03

L77 ANSWER 5 OF 8 WPIX (C) 2002 THOMSON DERWENT
AN **1992-398877** [48] WPIX
CR 1987-051527 [08]; 1987-291652 [41]; 1991-030738 [05]
DNC **C1992-177000**
TI New modified **xanthan gums** - with non-natural acetylation and/or pyruvylation pattern or poly tetramer structure, produced by Xanthomonas campestris mutants.
DC A11 A97 D16 D17 H01
IN DOHERTY, D H; FERBER, D M; HASSLER, R A; MARRELLI, J D; VANDERSLICE, R W; DOHERTY, D N
PA (MONS) MONSANTO CO; (GETT-N) GETTY SCI DEV CO; (TEXC) TEXACO DEV CORP; (DOHE-I) DOHERTY D H; (FERB-I) FERBER D M; (HASS-I) HASSLER R A; (MARR-I) MARRELLI J D; (VAND-I) VANDERSLICE R W; (KELC) CP KELCO US INC
CYC 21
PI WO 9219753 A1 19921112 (199248)* EN 67p C12P019-06
RW: AT BE CH DE DK ES FR GB GR IT LU MC NL SE
W: CA FI JP NO
FI 9304902 A 19931105 (199404) C12P000-00
NO 9304044 A 19931108 (199408) C12P000-00
EP 584206 A1 19940302 (199409) EN C12P019-06
R: AT BE CH DE DK ES FR GB GR IT LI LU MC NL SE

| | | | | | | |
|---|---|---|---|---|---|---|
| JP 06507433 | W | 19940825 | (199438) | | 20p | C08B037-00 |
| US 5514791 | A | 19960507 | (199624) | | 28p | C08B037-00 |
| SG 48883 | A1 | 19980518 | (199834) | | | C12P000-00 |
| US 5948651 | A | 19990907 | (199943) | | | A01N043-04 |
| FI 105345 | B1 | 20000731 | (200044) | | | C12P019-06 |
| US 6316614 | B1 | 20011113 | (200173) | | | C08B037-00 |
| US 2002103370 | A1 | 20020801 | (200253) | | | C07H013-02 |
| CA 2108895 | C | 20020709 | (200254) | EN | | C12P019-06 |

ADT WO 9219753 A1 WO 1992-US3448 19920501; FI 9304902 A WO 1992-US3448 19920501, FI 1993-4902 19931105; NO 9304044 A WO 1992-US3448 19920501, NO 1993-4044 19931108; EP 584206 A1 EP 1992-911566 19920501, WO 1992-US3448 19920501; JP 06507433 W JP 1992-511434 19920424, WO 1992-US3448 19920424; US 5514791 A CIP of US 1986-844435 19860326, Cont of US 1987-29090 19870323, CIP of US 1989-384621 19890725, CIP of US 1990-566875 19900613, Cont of US 1991-696732 19910507, US 1994-232416 19940425; SG 48883 A1 SG 1996-3370 19920501; US 5948651 A CIP of US 1986-844435 19860326, Cont of US 1987-29090 19870323, CIP of US 1989-384621 19890725, CIP of US 1990-566875 19900613, Div ex US 1991-696732 19910507, Cont of US 1992-928726 19920813, US 1995-406804 19950320; FI 105345 B1 WO 1992-US3448 19920501, FI 1993-4902 19931105; US 6316614 B1 CIP of US 1985-762878 19850806, CIP of US 1986-844435 19860326, Cont of US 1987-29090 19870323, CIP of US 1989-384621 19890725, CIP of US 1990-566875 19900613, Cont of US 1991-696732 19910507, Div ex US 1994-232416 19940425, US 1995-475823 19950607; US 2002103370 A1 CIP of US 1985-762878 19850806, CIP of US 1986-844435 19860326, Cont of US 1987-29090 19870323, CIP of US 1989-384621 19890725, CIP of US 1990-566875 19900613, Cont of US 1991-696732 19910507, Div ex US 1994-232416 19940425, Div ex US 1995-475823 19950607, US 2001-986803 20011113; CA 2108895 C CA 1992-2108895 19920501, WO 1992-US3448 19920501

FDT EP 584206 A1 Based on WO 9219753; JP 06507433 W Based on WO 9219753; FI 105345 B1 Previous Publ. FI 9304902; US 6316614 B1 CIP of US 4713449, Div ex US 5514791; CA 2108895 C Based on WO 9219753

PRAI US 1991-696732 19910507; US 1986-844435 19860326; US 1987-29090 19870323; US 1989-384621 19890725; US 1990-566875 19900613; US 1994-232416 19940425; US 1992-928726 19920813; US 1995-406804 19950320; US 1985-762878 19850806; US 1995-475823 19950607; US 2001-986803 20011113

REP EP 211288; EP 410326; US 4296203; US 4713449; WO 8705939

IC ICM A01N043-04; C07H013-02; C08B037-00; C12P000-00; C12P019-06
ICS C07G017-00; C07H001-00; C12N001-00; C12N001-20; C12P019-04

ICI C12P019-06, C12R001:64

AB WO 9219753 A UPAB: 20021001

(A) New water-soluble polysaccharides (I) comprise repeating **pentamer** units with a G:M:GA ratio of 2:2:1 (G = D-glucose, M = D-mannose, GA = D-glucuronic acid), where the G gps. are linked in a beta-(1,4) configuration, the inner M gps. are linked in an alpha-(1,3) configuration primarily to alternate G gps., the GA gps. are linked in a beta-(1,2) configuration to the inner M gps., and the outer M gps. are linked to the GA gps. in a beta-(1,4) configuration.

(B) New water-soluble polysaccharides (II) comprise repeating tetramer units with a G:M:GA ratio of 2:1:1, where the G gps. are linked in a beta-(1,4) configuration, the M gps. are acetylated or not acetylated at the 6-0 position and are linked in an alpha-(1,3) configuration primarily to alternate G gps., and the GA gps. are linked in a beta-(1,3) configuration to the M gps.

USE/ADVANTAGE - The gums are useful as viscosifiers or thickeners, e.g. in foods, drilling fluids and enhanced oil recovery fluids. The non-pyruvylated gums give lower viscosities at low temps. than wild-type (acetylated/pyruvylated) gums while having comparable viscosities at high temps. The **non-acetylated** gums give higher viscosities than wild-type gums over a broad temp. range.

Dwg.0/12

FS CPI

FA AB
MC CPI: A03-A; A09-A; D03-H01J; D06-H; H01-B06; H01-D06
ABEQ US 5514791 A UPAB: 19960618
A water-soluble polysaccharide polymer comprising repeating **pentamer** units having a D-glucose:D-mannose:D-glucuronic acid ratio of about 2:2:1, wherein the D-glucose moieties are linked in a beta-[1,4] configuration, inner D-mannose moieties are linked in an alpha-[1,3] configuration primarily to alternate glucose moieties, the D-glucuronic acid moieties are linked in a beta-[1,2] configuration to said inner mannose moieties, and outer mannose moieties are linked to said glucuronic acid moieties in a beta-[1,4] configuration, wherein said inner mannose moieties are not acetylated and a portion of said outer mannose moieties are acetylated.
Dwg.0/10

L77 ANSWER 6 OF 8 WPIX (C) 2002 THOMSON DERWENT
AN **1987-291652** [41] WPIX
CR 1987-051527 [08]; 1991-030738 [05]; 1992-398877 [48]
DNC **C1987-123874**
TI New water soluble mutant forms of **xanthan gum** - partic. lacking acetate or pyruvate substitution, esp. useful in oil recovery processes.
DC A11 A97 D13 D16 D17 H01
IN DOHERTY, D H; FERBER, D M; MARRELLI, J D; VANDERSLICE, R W; VANDERSLIC, R W
PA (GETT-N) GETTY SCI DEV CO; (MONS) MONSANTO CO
CYC 16
PI WO 8705939 A 19871008 (198741)* EN 36p
RW: AT BE CH DE FR GB IT LU NL SE
W: DK FI JP NO
NO 8704846 A 19880222 (198813)
JP 63503198 W 19881124 (198902)
EP 323952 A 19890719 (198929) EN
R: AT BE CH DE FR GB IT LI LU NL SE
NO 9201787 A 19880125 (199236) C08B037-00
EP 511690 A2 19921104 (199245) EN 17p C12P019-06
R: AT BE DE FR GB IT LU NL SE
NO 172945 B 19930621 (199330) C12P019-06
EP 323952 B1 19930811 (199332) EN 16p C12P019-06
R: AT BE CH DE FR GB IT LI LU NL SE
DE 3787026 G 19930916 (199338) C12P019-06
EP 511690 A3 19921119 (199342)
JP 2559437 B2 19961204 (199702) 16p C08B037-00
EP 765939 A2 19970402 (199718) EN C12P019-06
R: AT BE DE FR GB IT LU NL SE
EP 765939 A3 19970514 (199731)
EP 511690 B1 19970730 (199735) EN 20p C12P019-06
R: AT BE DE FR GB IT LU NL SE
JP 09176205 A 19970708 (199737) 16p C08B037-00
DE 3752096 G 19970904 (199741) C12P019-06
CA 1339113 C 19970729 (199742) C12P019-06
JP 2670256 B2 19971029 (199748) 15p C08B037-00
NO 309102 B1 20001211 (200101) C12P019-06
ADT WO 8705939 A WO 1987-US606 19870324; JP 63503198 W JP 1987-502340 19870324; EP 323952 A EP 1987-902919 19870324; NO 9201787 A Div ex NO 1987-4846 19870324, WO 1987-US606 19870324, NO 1992-1787 19920506; EP 511690 A2 EP 1992-111024 19870324; NO 172945 B WO 1987-US606 19870324, NO 1987-4846 19871120; EP 323952 B1 EP 1987-902919 19870324, WO 1987-US606 19870324; DE 3787026 G DE 1987-3787026 19870324, EP 1987-902919 19870324, WO 1987-US606 19870324; EP 511690 A3 EP 1992-111024 19870324; JP 2559437 B2 JP 1987-502340 19870324, WO 1987-US606 19870324; EP 765939 A2 Div ex EP 1992-111024 19870324, EP 1996-119095 19870324; EP 765939 A3 Div ex EP 1992-111024 19870324, EP 1996-119095 19870324; EP 511690 B1 Div ex EP

1987-902919 19870324, EP 1992-111024 19870324, Related to EP 1996-119095 19870324; JP 09176205 A Div ex JP 1987-502340 19870324, JP 1996-70588 19870324; DE 3752096 G DE 1987-3752096 19870324, EP 1992-111024 19870324; CA 1339113 C CA 1987-532838 19870324; JP 2670256 B2 Div ex JP 1987-502340 19870324, JP 1996-70588 19870324; NO 309102 B1 WO 1987-US606 19870324, Div ex NO 1987-4846 19871120, NO 1992-1787 19920506

FDT EP 511690 A2 Related to EP 323952; NO 172945 B Previous Publ. NO 8704846, Div in NO 9201787; EP 323952 B1 Based on WO 8705939; DE 3787026 G Based on EP 323952, Based on WO 8705939; JP 2559437 B2 Previous Publ. JP 63503198, Based on WO 8705939; DE 3752096 G Based on EP 511690; JP 2670256 B2 Previous Publ. JP 09176205; NO 309102 B1 Previous Publ. NO 9201787

PRAI US 1987-29090 19870323; US 1986-842945 19860324; US 1986-844435 19860326

REP 6.Jnl.Ref; US 3000790; US 4296203; 11Jnl.Ref; EP 211288; WO 8705938; No-SR.Pub; 7.Jnl.Ref; 5.Jnl.Ref; EP 66961

IC ICM C08B037-00; C12P019-06
ICS C07G017-00; C12N001-20; C12P001-04; C12P019-04

ICA C12R001-64

ICI C12R001:64; C12P019-06, C12R001:64; C12N001-20, C12R001:64; C12P019-06, C12R001:64; C12N001-20, C12R001:64; C12P019-06, C12R001:64

AB WO 8705939 A UPAB: 20020823

A series of water-soluble polysaccharides contg. D-glucose (G), D-mannose (M) and opt. D-glucuronic acid (GA) are new. They have the following characteristics. (1) G: M:GA ratio 2:1:1; G linked beta-1,4; M linked alpha-1,3 (generally to alternate G) and GA linked beta-1,2 to M; (2) G:M:GA ratio 2:2:1; G linked beta-1,4; M, not acetylated at 6-0, linked alpha-1,3 (generally to alternate G); GA linked beta-1,2 to **non-acetylated** M, and a second M contg. a 4,6-ketal linked pyruvate gp. linked beta-1,4 to GA; (3) similar to (2) but first M is 6-O-acetylated and second M does not contain pyruvate; (4) similar to (3) but the second M does not contain pyruvate, and the polymer is at least 90% acetylated; (5) G:M ratio 2:1; G linked beta-1,4 and M (at least 90% being 6-O-acetylated) and linked alpha-1,3, generally to alternate G.

USE/ADVANTAGE - These gums are superior to normal **xanthan gums** in shear rate, salt tolerance and temp. variation of viscosity properties. They are esp. useful in sec. and tert. oil recovery, but can also be used as thickeners (in foods, cosmetics, medicines, paper sizes, drilling muds and printing inks), gelling agents and to reduce frictional drag of fluid in pipes.

FS CPI

FA AB

MC CPI: A03-A; A03-C02; A12-W10B; D03-H01J; D04-B03; H01-B06; H01-D09

ABEQ EP 323952 B UPAB: 19931118

A composition comprising a water-soluble polysaccharide polymer having a D-glucose; D-mannose; D-glucuronic acid ratio of about 2:2:1 wherein (1) the D-glucose moieties are linked in a beta-1,4)configuration, (2) the D-mannose moieties are linked in an alpha-(1,3)configuration generally to alternative glucose moieties, and (3) the D-glucuronic acid moieties are linked in a beta-(1,2)configuration to the mannose moieties.

Dwg.0/3

ABEQ EP 511690 A UPAB: 19931202

A series of water-soluble polysaccharides contg. D-glucose (G), D-mannose (M) and opt. D-glucuronic acid (GA) are new. They have the following characteristics. (1) G: M:GA ratio 2:1:1; G linked beta-1,4; M linked alpha-1,3 (generally to alternate G) and GA linked beta-1,2 to M; (2) G:M:GA ratio 2:2:1; G linked beta-1,4; M, not acetylated at 6-0, linked alpha-1,3 (generally to alternate G); GA linked beta-1,2 to **non-acetylated** M, and a second M contg. a 4,6-ketal linked pyruvate gp. linked beta-1,4 to GA; (3) similar to (2) but first M is 6-O-acetylated and second M does not contain pyruvate; (4) similar to (3) but the second M does not contain pyruvate, and the polymer is at least 90% acetylated; (5) G:M ratio 2:1; G linked beta-1,4 and M (at least 90% being 6-O-acetylated) and linked alpha-1,3, generally to alternate G.

USE/ADVANTAGE - These gums are superior to normal **xanthan gums** in shear rate, salt tolerance and temp. variation of viscosity properties. They are esp. useful in sec. and tert. oil recovery, but can also be used as thickeners (in foods, cosmetics, medicines, paper sizes, drilling muds and printing inks), gelling agents and to reduce frictional drag of fluid in pipes.

ABEQ EP 511690 B UPAB: 19970828
A process for preparing a water-soluble polysaccharide polymer comprising repeating **pentamer** units having a D-glucose: D-mannose: D-glucuronic acid ratio of about 2:2:1, where the D-glucose moieties are linked in a beta- (1,4) configuration, inner D-mannose moieties are linked in an alpha- (1,3) configuration primarily to alternate glucose moieties, the D-glucuronic acid moieties are linked in a beta- (1,2) configuration to the inner mannose moieties, and outer mannose moieties are linked to the glucuronic acid moieties in a beta (1,4) configuration, where the polysaccharide polymer is not acetylated, the process comprising: (a) obtaining an acetylase deficient mutant of Xanthomonas; and (b) culturing the Xanthomonas under conditions sufficient to produce the polysaccharide polymer.
Dwg.0/4

L77 ANSWER 7 OF 8 WPIX (C) 2002 THOMSON DERWENT
AN **1987-079865** [12] WPIX
DNC **C1987-033317**
TI Modification of microbial polysaccharide(s) esp. **xanthan gum** - by adding nitric acid, heating, cooling and neutralising, giving saline-compatible thickener for oil recovery fluids.
DC A11 A97 D16 D17 H01 Q49
IN GROS, P; PIPON, R
PA (RHON) RHONE POULENC SPECIALITES CHIM
CYC 18
PI AU 8661120 A 19870219 (198712)* 34p
FR 2586249 A 19870220 (198713)
JP 62039643 A 19870220 (198713)
EP 215692 A 19870325 (198714) FR 15p
R: AT DE FR GB IT NL SE
BR 8603842 A 19870324 (198715)
NO 8603244 A 19870309 (198716)
FI 8603290 A 19870215 (198719)
DK 8603850 A 19870215 (198720)
CN 86105280 A 19870211 (198818)
ES 2000962 A 19880401 (198919)
US 4873323 A 19891010 (198950) 9p
EP 215692 B 19900314 (199011) FR
R: AT DE FR GB IT NL SE
CA 1265791 A 19900213 (199014)
DE 3669531 G 19900419 (199017)
SU 1570650 A 19900607 (199107)
US 5010186 A 19910423 (199120)
ADT AU 8661120 A AU 1986-61120 19860813; FR 2586249 A FR 1985-12382 19850814; JP 62039643 A JP 1986-188797 19860813; EP 215692 A EP 1986-401699 19860730; ES 2000962 A ES 1986-50 19860813; US 4873323 A US 1986-896282 19860814; SU 1570650 A SU 1986-4027937 19860813; US 5010186 A US 1989-372819 19890913
PRAI FR 1985-12382 19850814
REP 1.Jnl.Ref; EP 103483; EP 78621; FR 2551070; RO 84329; US 4299825
IC A61K031-71; C07G017-00; C08B005-02; C08B009-06; C08B037-00; C08L005-00; C10M145-40; C12N019-00; C12P019-06; E21B043-22
AB AU 8661120 A UPAB: 19930922
Prepn. of a polysaccharide (I) modified by heat treatment of an aq. compsn. contg. 0.05-35 wt.% (I) is characterised in that: (a) the compsn. is acidified with NHO3 to pH 2-0.1, pref. below 1.5; (b) the compsn. is heated to 50-100, pref. 60-90 deg.C for 5-60, pref. 10-45 min.; and (c)

the compsn. is cooled and base (e.g. NaOH, KOH or NH4OH) is added to pH 5-7. Aq. compsns. of the modified polysaccharides are claimed.

USE/ADVANTAGE - Useful for modifying **xanthan gums** and scleroglucans (claimed), either in whole fermentation broth or as a soln. of commercial (I). The treated prods. are useful for controlling the mobility for enhanced oil recovery, treatment improving the filterability and injectability of the aq. solns. without reducing viscosifiation ability and making them useful in average and low permeability formations. Treatment gives prods. which can be used in a saline medium without clogging.

0/3

FS CPI GMPI
FA AB
MC CPI: A03-A00A; A10-E; A12-W10B; D05-C08; D06-H; H01-B06
ABEQ EP 215692 B UPAB: 19930922

Process for the preparation of a high molecular weight polysaccharide of the homo- or heteropoly-saccharide type, obtained from the fermentation of a carbohydrate by the action of microorganisms, the said polysaccharide, characterised in that: (a) the composition is acidified by adding nitric acid until a pH of between 2 and 0.1 is obtained, (b) the composition is heated to a temperature of 50-100 deg. C for a period of between 5 and 60 minutes and (c) the composition is cooled and the pH is increased to a value of 5 to 7 by adding a base.

ABEQ US 4873323 A UPAB: 19930922

Prepn. of a modified polysaccharide bipolymer comprises (i) acidifying an aq. compsn. of a polysaccharide with nitric acid to pH 2-0.1 (ii) heat treating the acidified compsn. at 50-100 deg.C for 5-60 mins and (iii) cooling the resultant compsn. and adjusting the pH to 5-7 to give a modified polysacc--haride with a decreased no.of acetyl gps.

Pref. the aq. compsn. comprises 0.05-35 wt. % zo of polysaccharide and is a carbohydrate fermentation, broth or an aq. soln. of a powdered polysaccharide.

USE/ADVANTAGE - The **deacetylated** polysaccharides produced have improved viscosity, filterability and injectability and are useful for the recovery of oil from partially depleted oil deposits.

ABEQ US 5010186 A UPAB: 19930922

The prepn. of a modified polysaccharide biopolymer, comprises: (i) acidifying an aq. compsn. of a polysaccharide with nitric acid to pH 2-0.1; (ii) heat treating the acidified compsn. at 50-100 deg.C for 5-60 mins.; and (iii) cooling the heat-treated compsn. and adjusting the pH to 5-7.

The biopolymer pref. further comprises biocide and/or enzyme.

USE - Subterranean oil deposits are recovered using the polysaccharide biopolymer.

L77 ANSWER 8 OF 8 WPIX (C) 2002 THOMSON DERWENT
AN **1979-22429B** [12] WPIX
TI Aq. gels based on **de acetylated xanthan** and galactomannan - are stronger than those obtd. with acetylated **xanthan**, useful in foodstuffs, explosives, air-treating compsns. etc..
DC A11 D13 D17 D22 K04 P34
IN BRIGAND, G; KRAGEN, H
PA (CECA) CECA SA
CYC 6
PI EP 1192 A 19790321 (197912)*
R: CH DE GB NL
FR 2402678 A 19790511 (197924)
EP 1192 B 19811223 (198201) FR
R: CH DE GB NL
DE 2861455 G 19820211 (198207)
US 4369125 A 19830118 (198306)
PRAI FR 1977-27467 19770912

REP US 3384498; US 3677961
IC A23L001-04; A61L009-01; B01J013-00; C06B047-14; C08L005-00
AB EP 1192 A UPAB: 19930901
Prodn. of aq. gels based on galactomannan (I) and **xanthan** (II) uses (partially) **deacetylated xanthan** (IIa) and a (IIa): (I) ratio of 15:85 to 90:10. Pref. (I) is obtd. from carob, guar, tara and/or Espina corona gums. Carob gum when used pref. has a degree of polymsn. sufficient to give a viscosity of 20-6000 cP (1% soln. at 20 degrees C; Brookfield viscometer at 20 rpm). (IIa) may be obtd. as in US3000790.
Gelling compsns. based on (I) and (IIa) are also claimed, as are gels obtd. as above contg. 0.1-4% of (I) + (IIa)).
Prods. are stronger than previously possible using (II). They can be used in foodstuffs, e.g. in aspics or gelled desserts, and in explosive gels and air-treatment prods.
FS CPI GMPI
FA AB
MC CPI: A03-A; A10-E09; A12-S; D03-H01J; D06-H; K04-A

=> fil dpci
FILE 'DPCI' ENTERED AT 08:56:28 ON 10 OCT 2002
COPYRIGHT (C) 2002 THOMSON DERWENT

FILE LAST UPDATED: 10 OCT 2002 <20021010/UP>
MOST RECENT DERWENT DPCI UPDATE 200235
PATENTS CITATION INDEX, COVERS 1973 TO DATE

>>> CURRENT UPDATES CONTAIN CORRECTIONS TO PREVIOUSLY LOADED DOCUMENTS <<<

>>> LEARNING FILE LDPCI AVAILABLE <<<

=> d all

L78 ANSWER 1 OF 1 DPCI (C) 2002 THOMSON DERWENT
AN 1999-132209 [11] DPCI
DNC C1999-038740
TI Fluids for oil mining - comprises of a de-acetylated xanthane gum and a compound increasing the medium ionic strength.
DC A11 A14 A97 E37 H01 Q49
IN LANGLOIS, B
PA (RHOD) RHODIA CHIM
CYC 82
PI WO 9903948 A1 19990128 (199911)* EN 33p C09K007-02 <--
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW
FR 2766203 A1 19990122 (199911) C09K007-02
AU 9887343 A 19990210 (199925) C09K007-02
NO 2000000208 A 20000317 (200025) C09K000-00
EP 998540 A1 20000510 (200027) FR C09K007-02
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
CN 1267320 A 20000920 (200063) C09K007-02
MX 2000000600 A1 20001001 (200158) C08B037-00
ADT WO 9903948 A1 WO 1998-FR1514 19980710; FR 2766203 A1 FR 1997-9087 19970717; AU 9887343 A AU 1998-87343 19980710; NO 2000000208 A WO 1998-FR1514 19980710, NO 2000-208 20000114; EP 998540 A1 EP 1998-938729 19980710, WO 1998-FR1514 19980710; CN 1267320 A CN 1998-808299 19980710;

```
     MX 2000000600 A1 MX 2000-600 20000117
FDT  AU 9887343 A Based on WO 9903948; EP 998540 A1 Based on WO 9903948
PRAI FR 1997-9087     19970717
IC   ICM  C08B037-00; C09K000-00; C09K007-02
     ICS  E21B021-06; E21B043-22; E21B043-25
FS   CPI GMPI

CTCS CITATION COUNTERS
----------------------
PNC.DI    0              Cited Patents Count (by inventor)
PNC.DX    6              Cited Patents Count (by examiner)
IAC.DI    0              Cited Issuing Authority Count (by inventor)
IAC.DX    3              Cited Issuing Authority Count (by examiner)

PNC.GI    0              Citing Patents Count (by inventor)
PNC.GX    0              Citing Patents Count (by examiner)
IAC.GI    0              Citing Issuing Authority Count (by inventor)
IAC.GX    0              Citing Issuing Authority Count (by examiner)

CRC.I     0              Cited Literature References Count (by inventor)
CRC.X     1              Cited Literature References Count (by examiner)

CDP  CITED PATENTS       UPD: 20001030
-----------------

     Cited by Examiner
     -----------------

     CITING PATENT    CAT    CITED PATENT     ACCNO
     ------------------------------------------------------
     EP 998540     A         No Citations
     WO 9903948    A  Y      EP 765939     A  1987-291652/41
                     PA:  (GETT-N) GETTY SCI DEV CO
                     IN:  DOHERTY, D H; FERBER, D M; MARRELLI, J D; VANDERSLICE,
                          R W; VANDERSLIC, R W
                       Y      GB 1080248    A  1968-74899P/00
                     PA:  (ESSO) ESSO PRODN RES CO
                       Y      US 3096293    A
                     IN:  JEANES
                       Y      US 4186803    A  1980-12617C/07
                     PA:  (TEXA-N) TEXAS BRINE CORP
                     IN:  MONDSHINE, T C
                       A      US 4218327    A  1980-64043C/36
                     PA:  (SHEL) SHELL OIL CO
                     IN:  WELLINGTON, S L
                       Y      US 4868293    A  1987-051527/08
                     PA:  (GETT-N) GETTY SCI DEV CO
                     IN:  SHANON, P; VANDERSLICE, R W; VANDERSLIC, R W; SHANNON,
                          P

REN  LITERATURE CITATIONS  UPR: 20001030
-------------------------

     Citations by Examiner
     ---------------------

     CITING PATENT    CAT    CITED LITERATURE
     ------------------------------------------------------------------------
     EP 998540     A         See references of WO 9903948A1


=> fil wpix
FILE 'WPIX' ENTERED AT 08:59:43 ON 10 OCT 2002
```

FILE LAST UPDATED: 07 OCT 2002 <20021007/UP>
MOST RECENT DERWENT UPDATE 200264 <200264/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

>>> SLART (Simultaneous Left and Right Truncation) is now
available in the /ABEX field. An additional search field
/BIX is also provided which comprises both /BI and /ABEX <<<

>>> The BATCH option for structure searches has been
enabled in WPINDEX/WPIDS and WPIX <<<

>>> PATENT IMAGES AVAILABLE FOR PRINT AND DISPLAY <<<

>>> FOR DETAILS OF THE PATENTS COVERED IN CURRENT UPDATES,
SEE http://www.derwent.com/dwpi/updates/dwpicov/index.html <<<

>>> FOR A COPY OF THE DERWENT WORLD PATENTS INDEX STN USER GUIDE,
PLEASE VISIT:
http://www.stn-international.de/training_center/patents/stn_guide.pdf <<<

>>> FOR INFORMATION ON ALL DERWENT WORLD PATENTS INDEX USER
GUIDES, PLEASE VISIT:
http://www.derwent.com/userguides/dwpi_guide.html <<<

=> d all abeq tech abex

L85 ANSWER 1 OF 4 WPIX (C) 2002 THOMSON DERWENT
AN 1987-051527 [08] WPIX
CR 1987-291652 [41]; 1991-030738 [05]; 1992-398877 [48]
DNN N1987-039074 DNC C1987-021433
TI New polysaccharide from Xanthomonas contg. no glucuronic acid - useful as viscosifier, esp. for oil recovery under high temp. or salt conditions.
DC A97 B04 D13 D16 D21 H01 Q49
IN SHANON, P; VANDERSLICE, R W; VANDERSLIC, R W; SHANNON, P
PA (GETT-N) GETTY SCI DEV CO
CYC 17
PI EP 211288 A 19870225 (198708)* EN 28p
R: AT BE CH DE FR GB IT LI LU NL SE
NO 8603135 A 19870302 (198715)
DK 8603721 A 19870207 (198719)
FI 8603213 A 19870207 (198719)
JP 62084102 A 19870417 (198721)
US 4713449 A 19871215 (198806) 12p
CA 1247033 A 19881220 (198904)
US 4868293 A 19890919 (198947) 12p <--
CA 1264537 A 19900123 (199008)
CA 1279180 C 19910122 (199110)
US 5102561 A 19920407 (199217) 12p
EP 211288 B1 19921021 (199243) EN 23p C12P019-06
R: BE CH DE FR GB IT LI LU NL SE
DE 3686986 G 19921126 (199249) C12P019-06
FI 92719 B 19940915 (199437) C12P019-06
JP 2520881 B2 19960731 (199635) 14p C08B037-00
JP 08239403 A 19960917 (199647) 12p C08B037-00
JP 2746560 B2 19980506 (199823) 11p C12N001-20
ADT EP 211288 A EP 1986-109782 19860716; JP 62084102 A JP 1986-178978 19860731; US 4713449 A US 1985-762878 19850806; US 4868293 A US 1987-99618 19870922; US 5102561 A US 1991-715861 19910617; EP 211288 B1 EP 1986-109782 19860716; DE 3686986 G DE 1986-3686986 19860716, EP 1986-109782 19860716; FI 92719 B FI 1986-3213 19860806; JP 2520881 B2 JP 1986-178978 19860731; JP 08239403 A Div ex JP 1986-178978 19860731, JP

1995-341723 19860731; JP 2746560 B2 Div ex JP 1986-178978 19860731, JP 1995-341723 19860731

FDT DE 3686986 G Based on EP 211288; FI 92719 B Previous Publ. FI 8603213; JP 2520881 B2 Previous Publ. JP 62084102; JP 2746560 B2 Previous Publ. JP 08239403

PRAI US 1987-99618 19870922; US 1985-762878 19850806; US 1989-333285 19890405; US 1991-715861 19910617

REP 2.Jnl.Ref; A3...198739; No-Sr.Pub

IC ICM C12N001-20; C12P019-06
ICS C08L001-00; C12R001-64; E21B021-00; E21B043-22; G05D024-00

ICA C08B037-00; C09K003-00; C09K007-00; C12P019-04

ICI C12P019-04, C12R001:64; C12N001-20, C12R001:64; C12P019-04, C12R001:64; C12P019-04, C12R001:64

AB EP 211288 A UPAB: 20020823
A new, water-soluble polysaccharide polymer (I) contains no glucuronic acid (GA) and has D-glucose:D-mannose ratio about 2:1. The glucose is linked in thebeta-1,4-configuration and the mannose in the beta-1,3 configuration, generally to alternate glucose residues. Opt. the mannose gps. are 6-O-acetylated. Also new are microbiologically pure cultures of Xanthomonas able to produce (I), specifically the strains ATCC 53195 and 53196.% (I) is made by aerobic fermentation of a Xanthomonas strain, unable to incorporate GA, on a suitable growth medium, pref. at 28-32 deg.C and pH 6-7.5. (I) is recovered by pptn., e.g. using isopropanol or by ultrafiltration.

USE/ADVANTAGE - (I) is used to increase the viscosity of an aq. media, esp. in oil recovery processes, but also in foods, cosmetics, medical formulations, paper sizes, drilling muds, printing inks or to reduce frictional drag of fluid flow in pipes. Compared with xanthan gum, (I) is a better viscosifier,esp. at high temp. and/or under high salt conditions.

Dwg.0/5

FS CPI GMPI

FA AB

MC CPI: A03-A00A; A12-W10B; B04-B02B1; B04-C02; D05-C08; H01-B06; H01-D06

ABEQ EP 211288 B UPAB: 19930922
A water-soluble polysaccharide polymer containing essentially no glucuronic acid moieties having a D-glucose: D-mannose ratio of about 2:1, wherein the D-glucose moieties are linked in a beta-(1,4) configuration and the D-mannose moieties are generally linked to alternate glucose moieties in an alpha-(1,3) configuration.

1/5

ABEQ US 4713449 A UPAB: 19930922
Water-sol., polysaccharide polymer (I) comprises glucose and mannose moieties, having a D-glucose:D-mannose ratio of 2:1.

The D-glucose moieties are linked in a beta-(1,4)-configuration and the D-mannose moieties are linked in an alpha-(1,3) configuration, generally to alternate glucose moieties.

USE/ADVANTAGE - (I) is a better viscosifier of water than naturally occurring xanthan gum.

ABEQ US 4868293 A UPAB: 19930922
Prepn. of a water-soluble, polysaccharide polymer compsn. contg. no glucuronic acid gps., having D-glucose; D-mannose ratio 2:1, and having the D-glucose gps. linked in a beta-1,4 configuration and the D-mannose gps. in alpha-1,3 configuration, generally to alternate glucose moieties is claimed. A growth medium is inoculated with a genus Xanthomonas microorganism which cannot incorporate glucuronic acid into the polysaccharide polymer, and the medium is incubated at suitable temp. and dissolved oxygen content. Microbiologically pure culture of the microorganism is also claimed.

USE/ADVANTAGE - Polymer is esp. useful in mobility control solns. for enhanced oil recovery. It performs well at high temp. and at high salt levels. It can also be used in food, medicines, drilling muds, cosmetics, paper sizing, etc.

ABEQ US 5102561 A UPAB: 19930922
A new process for increasing the viscosity of aq. media (foods, cosmetics, medicines, petroleum drilling fluids) comprises dissolving in it a polysaccharide polymer without gluocouronic acid moieties but having D-glucose:D-mannose ratio of about 2:1. The D-glucose moieties are linked in beta (1.4) configuration and the D-mannose moieties are generally linked to alternate glucose moieties in an alpha (1.3) configuration.

A new process for recovering oil from a subterranean formation comprises injecting a soln. of the above polysaccharide into a well to displace trapped oil from the porous rock and collecting it.

ADVANTAGE - The above polysaccharide is a more effective viscosifying agent than the conventionally used xanthan gum and also has wider salinity and temp. ranges. It may be obtd. by altering Xanthomonas mutants to change its biosynthetic pathway to produce the desired polymer instead of xanthan gum.

=> d all abeq tech abex 2-4

L85 ANSWER 2 OF 4 WPIX (C) 2002 THOMSON DERWENT
AN 1980-64043C [36] WPIX
TI Prepn. of viscosity-stabilised xanthan gum solns. - by using deoxygenated water and adding antioxidant and alcohol.
DC A11 A97 D16 D17 H01
IN WELLINGTON, S L
PA (SHEL) SHELL OIL CO
CYC 1
PI US 4218327 A 19800819 (198036)* <--
PRAI US 1976-673518 19760405; US 1978-903279 19780505
IC C09K003-00
AB US 4218327 A UPAB: 19930902
Prepn. of aq. solns. thickened with xanthan gum (XG) is carried out by (a) treating an aq. liq. to remove dissolved O2, (b) adding a water-soluble S-contg. antioxidant (I), (c) adding a water-soluble, readily oxidisable alcohol (II), and (d) adding XG.

Specifically, (I) and (II) are defined as being capable of protecting a soln. contg. XG, NaCl, a sulphite-type oxygen scavenger and 800 ppm of each of (I) and (II) from drastic (>25%) loss of viscosity when boiled at atmospheric pressure for 5 min.

The process is esp. applicable to XG solns. for use in oil recovery operations. The solns. retain practically constant viscosity when exposed to high temps. over long periods.
FS CPI
FA AB
MC CPI: A03-A; A12-W10; D04-B03; D06-H; H01-D06

L85 ANSWER 3 OF 4 WPIX (C) 2002 THOMSON DERWENT
AN 1980-12617C [07] WPIX
CR 1979-87479B [48]
TI Well completion and workover method - using treating fluid comprising satd. aq. saline soln. with sized particles of water-soluble salt(s).
DC H01 Q49
IN MONDSHINE, T C
PA (TEXA-N) TEXAS BRINE CORP
CYC 1
PI US 4186803 A 19800205 (198007)* <--
PRAI US 1976-735169 19761026; US 1977-850639 19771111; US 1978-938033 19780830
IC E21B033-13
AB US 4186803 A UPAB: 19930902
In a well completion and workover method in which a subterranean formation in a well is contacted with a treating fluid, (a) a treating fluid comprising a satd. aq. saline soln. with >=1 water-soluble salt which is

insoluble in the saline soln. is pumped in the well so that it contacts the formation, the saline soln. and the salt each being selected from KCl, NaCl, CaCl2, Na2SO4, Na2CO3, NaHCO3, CaBr2 and K2CO3 and mixts. of these; (b) the salt is maintained in a particle size range of 5-800 mu with >5% of the particles being coarser than 44 mu to bridge and seal off the formation; and (c) the salt bridging particles are dissolved off the formation to remove the bridge and seal from the formation for flow of hydrocarbons into the well.

Pref. a viscosifier and suspension additive (e.g. CMC) in an amt. of 0.2-5 lb. per bbl. of satd. brine soln., and a fluid loss additive are also circulated in the well bore with the treating fluid. US4175042 claimed the treating fluid.

FS CPI GMPI
FA AB
MC CPI: H01-C; H01-C10

L85 ANSWER 4 OF 4 WPIX (C) 2002 THOMSON DERWENT
AN 1968-74899P [00] WPIX
TI Aqueous medium for use in underground boring operations.
DC A97 D16 H01
PA (ESSO) ESSO PRODN RES CO
CYC 2
PI NL 6608742 A (196800)*
GB 1080248 A (196801) <--
NL 148083 B 19751225 (197608)
PRAI US 1965-466207 19650623
IC C08B037-00; C08L005-00; C09K007-02
AB NL 6608742 A UPAB: 19930831
Process for injecting an aqueous medium into a borehole in the earth, so that the aqueous medium contacts an underground formation, employs an aqueous medium containing a heteropolysaccharide, produced by the action of bacteria of the genus Xanthomonas on a carbohydrate. The heteropolysaccharide is crosslinked in the medium with polyvalent cations of a metal of Groups III-VIII.

The heteropolysaccharide is readily produced by fermentation of X. Campestris upon a carbohydrate containing aqueous medium, under conventional aerabic conditions. The product may be obtained from the filtered liquor by means of precipitation with methanol or ethanol. The heteropolysaccharide is obtained as a voluminous powder.

FS CPI
FA AB
MC CPI: A03-A; A11-C02; A12-A02

=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 09:00:55 ON 10 OCT 2002
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

FILE COVERS 1907 - 10 Oct 2002 VOL 137 ISS 15
FILE LAST UPDATED: 9 Oct 2002 (20021009/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.

=> d all l86

L86 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2002 ACS
AN 1963:436371 HCAPLUS
DN 59:36371
OREF 59:6604a
TI Deacetylated polysaccharide thickeners
IN Jeanes, Allene R.; Sloneker, James H.
PA United States Dept. of Agriculture
SO 3 pp.; Division of U.S. 3,000,790 (CA 56, 2625d)
DT Patent
LA Unavailable
NCL 252316000
CC 50 (Industrial Carbohydrates)

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 3096293 | | 19630702 | US | 19601031 <-- |

AB The disclosures are similar, but the claims are different.

=> fil tulsa
FILE 'TULSA' ENTERED AT 09:05:45 ON 10 OCT 2002
COPYRIGHT (C) 2002 The University of Tulsa (UTULSA)

FILE COVERS 1965 TO 9 OCT 2002 (20021009/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d bib ab rn tot

L94 ANSWER 1 OF 9 TULSA COPYRIGHT 2002 UTULSA
AN 2001:11565 TULSA
DN 753893
TI NOVEL APPLICATION OF SYNERGISTIC GUAR/**NON- ACETYLATED XANTHAN GUM** MIXTURES IN HYDRAULIC FRACTURING
AU FISCHER, C C; CONSTIEN, V G; NAVARRETE, R C; COFFEY, M D; ASADI, M
CS CONSTIEN & ASSOCIATES; KELCO OIL FIELD GROUP; CP KELCO; STIM LAB INC
SO SPE OILFIELD CHEM INT SYMP (HOUSTON, TX, 2/13-16/2001) PROC 2001 (SPE-65037; AVAILABLE ON CD-ROM; COLOR; 12 PP; 14 REFS)
DT Conference; Conference Article
LA English
AB Fracturing fluids have traditionally been viscosified with guar and guar derivatives. **Non-acetylated xanthan** is a variant of **xanthan gum** which when combined with guar in solution develops a synergistic interaction that generates superior viscosity and particle transport at lower polymer concentrations. These water-base linear fluids have improved low shear viscosity at concentrations at or below 25 lb/1,000 gal when compared to fluids viscosified using a single viscosifier such as guar or **xanthan gum**. The polymer mixtures can be crosslinked to provide enhanced

viscosity at higher temperatures. The effect of different parameters on the rheology of the mixtures is presented, such as the ratio of guar to **non-acetylated xanthan**, the effect of salts, temperature and shear history. Large scale proppant transport tests were performed to evaluate proppant transport of the mixtures with respect to pure guar fluids
RN 9000-30-0 (GUAR GUM)
11078-30-1 (GALACTOMANNAN)
**11138-66-2 (XANTHAN GUM)**

L94 ANSWER 2 OF 9 TULSA COPYRIGHT 2002 UTULSA
AN 1999:22484 TULSA
DN 711685
CR 704454
TI (R) FLUIDS USEFUL FOR THE EXPLOITATION OF PETROLEUM COMPRISING **DE -ACETYLATED XANTHANE GUM** AND AT LEAST ONE COMPOUND INCREASING THE IONIC STRENGTH OF THE MEDIUM (FLUIDES UTILISABLES DANS L'EXPLOITATION DU PETROLE COMPRENANT DE LA GOMME **XANTHANE** DESACETYLEE ET AU MOINS UN COMPOSE AUGMENTANT LA FORCE IONIQUE DU MILIEU)
IN LANGLOIS, B
PA RHODIA CHIMIE
PI FR 2766203 19990122
AI FR 1997-9709087 19970717
SO FR 2,766,203, C 1/22/1999, F 7/17/1997 (APPL 9,709,087) (C09K-007/02; E21B-021/06; E21B-043/25; E21B-043/22) BULL OFFIC PROPRIETE IND (FR) NO 3, P 88, 1/22/1999 (ISSN 07507650; IN FRENCH; ABSTRACT ONLY) (AO) SRPA# 704,454
DT Patent
LA French
AB (For abstract and indexing, see Abstract #704,454)

L94 ANSWER 3 OF 9 TULSA COPYRIGHT 2002 UTULSA
AN 1999:15253 TULSA
DN 704454
TI FLUIDS USEFUL FOR OIL MINING COMPRISING **DE- ACETYLATED XANTHANE GUM** AND AT LEAST ONE COMPOUND INCREASING THE MEDIUM IONIC STRENGTH (FLUIDES UTILISABLES DANS L'EXPLOITATION DU PETROLE COMPRENANT DE LA GOMME **XANTHANE** DESACETYLEE ET AU MOINS UN COMPOSE AUGMENTANT LA FORCE IONIQUE DU MILIEU)
IN LANGLOIS, B
PA RHODIA CHIMIE
PI WO 9903948 19990128
AI WO 19980710
PRAI FR 1997-9709087 19970717
SO WORLD 99/03,948, P 1/28/1999, F 7/10/1998, PR FR 7/17/1997 (APPL 9,709,087) (C09K-007/02; C08B-037/00) (33 PP; 21 CLAIMS; IN FRENCH)
DT Patent
LA French
AB Guar-free fluids capable of being used in oil exploitation are described that contain **deacetylated xanthane gum** in the form of a polypentamer, combined with at least one compound increasing the medium ionic strength. The fluids can be used as filtrate reducers with enhanced properties, using **deacetylated xanthane gum** in the form of a polypentamer, combined with a compound increasing the medium ionic strength and a standard filtrate reducer. The fluids have application as an additive in drilling fluids, workover and completion fluids.
RN **11138-66-2 (XANTHAN)**
**11138-66-2 (XANTHAN GUM)**

L94 ANSWER 4 OF 9 TULSA COPYRIGHT 2002 UTULSA
AN 97:15758 TULSA
DN 655592

CR 545426
TI (R) FAMILY OF **XANTHAN**-BASED POLYSACCHARIDE POLYMERS INCLUDING **NON-ACETYLATED** AND/OR NON-PYRUVYLATED GUM
IN DOHERTY, D H; FERBER, D M; MARRELLI, J D
PA GETTY SCIENTIFIC DEV CO
PI EP 765939 19970402
AI EP 19870324
PRAI US 1986-842945 19860324
PRAI US 1986-844435 19860326
PRAI US 1987-29090 19870323
SO EUROPE 765,939, P 4/2/97, F 3/24/87, PR US 3/24/86 (APPL 842,945), US 3/26/86 (APPL 844,435) AND US 3/23/87 (APPL 29,090) (C12P-019/06; C08B-037/00; C12R-001/64) EUROPE PAT BULL V 1997, NO 14, P 94, 4/2/97 (ISSN 01709305; ABSTRACT ONLY) (AO) SRPA# 545,426
DT Patent
LA English
AB (For abstract and indexing, see Abstract #545,426)
RN **11138-66-2 (XANTHAN GUM)**

L94 ANSWER 5 OF 9 TULSA COPYRIGHT 2002 UTULSA
AN 97:5445 TULSA
DN 645279
TI PARTICLE TRANSPORT FLUIDS THICKENED WITH ACETYLATE FREE **XANTHAN** HETEROPOLYSACCHARIDE BIOPOLYMER PLUS GUAR GUM
IN HODGE, R M
PA DU PONT DE NEMOURS & CO
PI US 5591699 19970107
AI US 19941221
PRAI US 1993-21943 19930224
SO US 5,591,699, C 1/7/97, F 12/21/94, PR US 2/24/93 (APPL 21,943) (F21B-043/26) (9 PP; 8 CLAIMS)
DT Patent
LA English
AB A quite small amount of **nonacetylated** but otherwise unmodified **xanthan** heteropolysaccharide polymer plus a quite small amount of guar gum has been found to impart viscosity to an aqueous particle transport fluid (for example, a drilling fluid, fracturing fluid, or a filter structure emplacement fluid) sufficient to suspend mineral particles. A crosslinking agent can also be employed to further decrease the amount of **non-acetylated xanthan,** heteropolysaccharide polymer and guar gum that are needed for particle suspension. These **xanthan** polymers can be produced by a Xanthomonas campestris variant such as that having Accession No. 68038 at the American Type Culture Collection, Rockville, Md., or by a mutant X. campestris variant having a suitable chromosomal deletion mutation. The **xanthan** polymer variants which are suitable are quite specific. For example, **xanthan** polymers produced by native or wild X. campestris are nowhere nearly as effective in suspending particles, nor are other variants produced by genetic engineering means, nor are conventional xantham polymers which are **deacetylated** by chemical means.
RN 9000-30-0 (GUAR GUM)
**11138-66-2 (XANTHAN)**
**11138-66-2 (XANTHAN GUM)**
39421-75-5 (HYDROXYPROPYL GUAR GUM)

L94 ANSWER 6 OF 9 TULSA COPYRIGHT 2002 UTULSA
AN 93:5013 TULSA
DN 545426
TI FAMILY OF **XANTHAN**-BASED POLYSACCHARIDE POLYMERS INCLUDING **NON-ACETYLATED** AND/OR NON-PYRUVYLATED GUM
IN DOHERTY, D H; FERBER, D M; MARRELLI, J D; VANDERSLICE, R W
PA GETTY SCIENTIFIC DEV CO

PI EP 511690 19921104
AI EP 19870324
PRAI US 1986-842945 19860324
PRAI US 1986-844435 19860326
PRAI US 1987-29090 19870323
SO EUROPE 511,690, P 11/4/92, F 3/24/87, PR US 3/24/86 (APPL 842,945), US 3/26/86 (APPL 844,435) AND US 3/23/87 (APPL 29,090) (C12P-019/06; C12R-001/64) (17 PP; 16 CLAIMS)
DT Patent
LA English
AB Variant **xanthan gums** are described, including **non- acetylated**, non-pyruvylated, **non-acetylated** and non- pyruvylated, and fully-acetylated **xanthan gums**. In addition, in vitro and in vivo methods for the synthesis of these gums are described. Mutant Xanthomonas campestris strains useful in these syntheses are also specified. The gums are commonly used as thickening agents, in secondary or tertiary oil recovery as a mobility control and profile modification agent, and in drilling fluids.
RN 127-17-3 (PYRUVIC ACID)
7782-44-7 (OXYGEN)
**11138-66-2 (XANTHAN GUM)**
25777-71-3 (NATURAL RESIN)
50-99-7Q, 25191-16-6Q (GLUCOSE)
3458-28-4Q, 31103-86-3Q (MANNOSE)

L94 ANSWER 7 OF 9 TULSA COPYRIGHT 2002 UTULSA
AN 87:10103 TULSA
DN 420704
TI A POLYSACCHARIDE POLYMER MADE BY XANTHOMONAS
IN VANDERSLICE, R W; SHANON, P
PA GETTY SCIENTIFIC DEV CO
PI EP 211288 19870225
AI EP 19860716
PRAI US 1985-762878 19850806
SO EUROP 211,288, P 2/25/87, F 7/16/86, PR US 8/6/85 (APPL 762,878) (29 PP; 18 CLAIMS)
DT Patent
LA English
AB A polysaccharide polymer, which is a viscosifier of water, and its **non-acetylated** form are comprised of glucose and mannose moieties in a ratio of 2:1. Also described are Xanthomonas mutants which produce the polysaccharide polymer but which do not produce **xanthan gum**. A method of preparing the polysaccharide polymers is described. The polymers may be used in enhanced oil recovery as mobility control and profile modification agents and in drilling fluids.

L94 ANSWER 8 OF 9 TULSA COPYRIGHT 2002 UTULSA
AN 82:8280 TULSA
DN 318268
TI XANTHOMONAS BIPOLYMER FOR USE IN DISPLACEMENT OF OIL FROM PARTIALLY DEPLETED RESERVOIRS
IN WERNAU, W C
PI US 4296203 19811020
AI US 1977-851757 19771115
SO US 4,296,203, C 10/20/81, F 11/15/77 (APPL 851,757) (PFIZER INC) (9 CLAIMS)
DT Patent
LA English
AB A process is described for preparing a pyruvate-free Xanthomonas colloid-containing fermentation broth suitable for the preparation of mobility control solutions used in oil recovery which comprises

aerobically fermenting a mutant strain of the genus Xanthomonas in an aqueous nutrient medium. The pyruvate-free **xanthan** and the **deacetylated** form of this biopolymer provide mobility control solutions which are especially useful for enhanced oil recovery where high brine applications are involved. The mobility control solutions produced in accord with this process are employed in oil recovery in the same manner as previously known mobility control solutions. (9 claims)
RN 127-17-3 (PYRUVIC ACID)
**11138-66-2 (XANTHAN GUM)**
25777-71-3 (NATURAL RESIN)

L94 ANSWER 9 OF 9 TULSA COPYRIGHT 2002 UTULSA
AN 82:7340 TULSA
DN 317328
TI XANTHOMONAS BIOPOLYMER FOR USE IN DISPLACEMENT OF OIL FROM PARTIALLY DEPLETED RESERVOIRS
IN WERNAU, W C
PI CA 1113875 19811208
AI CA 19781024
PRAI US 1977-851757 19771115
SO CAN 1,113,875, C 12/8/81, F 10/24/78, PR US 11/15/77 (APPL 851,757) (PFIZER INC) (16 CLAIMS)
DT Patent
LA English
AB A process is described for preparing a pyruvate-free Xanthomonas colloid-containing fermentation broth suitable for the preparation of mobility control solutions used in secondary oil recovery. The process involves aerobically fermenting a pyruvate-free **xanthan** -producing strain of a species of the genus Xanthomonas in an aqueous nutrient medium. The ingredients of the medium comprise a carbohydrate, a source of assimilable nitrogen, and trace elements. The fermentation is continued until at least 100 ppm of pyruvate-free **xanthan** is present in the broth, and where required **deacetylation** is performed. The process also provides a pyruvate-free **xanthan** -containing fermentation broth, pyruvate-free **xanthan**, and their **deacetylated** forms. The pyruvate-free **xanthan** and the **deacetylated** form of this biopolymer provide mobility control solutions which are especially useful for enhanced oil recovery where high brine applications are involved. (16 claims)
RN 127-17-3 (PYRUVIC ACID)
8002-05-9 (CRUDE OIL)
8002-05-9 (PETROLEUM)
**11138-66-2 (XANTHAN GUM)**
25777-71-3 (NATURAL RESIN)

=> d his

(FILE 'HOME' ENTERED AT 07:45:35 ON 10 OCT 2002)
SET COST OFF

FILE 'REGISTRY' ENTERED AT 07:46:08 ON 10 OCT 2002
E XANTHAN GUM/CN
L1 1 S E3

FILE 'HCAPLUS' ENTERED AT 07:46:23 ON 10 OCT 2002
L2 6898 S L1
L3 20 S L1 (L) DEACET?
L4 20 S L3 AND L2
L5 6651 S XANTHAN(A)GUM
E DEACETYLATION/CT
E E3+ALL
L6 1069 S E5

```
                E E4+ALL
L7          597 S E4
                E E9+ALL
L8          987 S E4,E3+NT
                E E10+ALL
                E E8+ALL
L9         1466 S E2,E4
L10          14 S L2,L5 AND L6-L9
L11          43 S L2,L5  AND DEACET?
L12          13 S L2,L5  AND DEACYL?
L13          57 S L4,L10-L12 AND L2-L12
                E LANGLOIS B/AU
L14          67 S E3-E5,E11-E13
L15           1 S L14 AND L13
L16           1 S L14 AND L2,L5
                E RHODIA/PA,CS
L17        1137 S E3,E4
L18          32 S L2,L5 AND L17
L19           1 S L13 AND L15,L16,L18
L20          31 S L18 NOT L19
                E DRILLING FLUID/CT
                E E4+ALL
L21        7554 S E2,E3,E1+NT
                E E8+ALL
L22        1151 S E2,E1+NT
                E E7+ALL
L23        1561 S E3+NT
                E DRILLING FLUID/CT
                E E4+ALL
                E E9+ALL
L24        2374 S E4,E3+NT
                E E13+ALL
L25        5086 S E4,E3+NT
                E E12+ALL
L26        2374 S E4,E3+NT
                E E2+ALL
L27       12718 S E3,E2+NT
                E DRILLING FLUIDS/CT
L28         402 S E8
                E E3+ALL
                E E11+ALL
L29         388 S E1
L30         276 S L2,L5 AND L21-L29
L31           3 S L30 AND L20
L32           1 S L30 AND L13
L33           4 S L31,L32
L34           1 S L33 AND LANGLOIS ?/AU
L35          56 S L13 NOT L34
L36           0 S L35 AND L30
L37           1 S L35 AND FUEL?/SC,SX
L38           2 S L34,L37
L39          55 S L35 NOT L38
L40          55 S L39 AND XANTHAN
L41          47 S L40 AND GUM
L42           8 S L40 NOT L41
L43          55 S L39-L42
L44          49 S L43 AND (PD<=20000114 OR PRD<=20000114 OR AD<=20000114)
                SEL DN AN 3 4 14 25 30 31 35 44 45 46 47
L45          11 S L44 AND E1-E33
L46          13 S L38,L45
L47          44 S L43 NOT L46
                SEL DN AN 5 6 11 16 17 18 19 20 25 26 28 31 32 33 34 35 38 39 4
L48          21 S L47 AND E34-E96
```

```
L49          34 S L46,L48
L50           9 S L2,L5 AND (DE ACET? OR DE ACYL? OR NONACET? OR NONACYL? OR NO
L51           4 S L50 AND L49
L52           5 S L50 NOT L51
L53           4 S L52 NOT SUBSTRATE/TI
L54          38 S L49,L51,L53
L55        8536 S L2,L5 OR XANTHAN
L56           3 S L55 AND ?PENTAMER?
L57          40 S L54,L56
L58          40 S L57 AND L2-L57
L59           9 S L58 AND ?ACYL?
L60          36 S L58 AND ?ACETYL?
L61          40 S L58-L60
L62         161 S L55 AND C09K007/IC,ICM,ICS
L63           1 S L62 AND L61
L64          40 S L61,L63

     FILE 'REGISTRY' ENTERED AT 08:21:12 ON 10 OCT 2002

     FILE 'HCAPLUS' ENTERED AT 08:21:22 ON 10 OCT 2002

     FILE 'WPIX' ENTERED AT 08:21:47 ON 10 OCT 2002
                  E LANGLOIS B/AU
L65           43 S E3-E5
L66         4808 S XANTHAN?(A)GUM OR ?XANTHAN? OR R16377/DCN,PLE
L67           3 S L65 AND L66
                  E R07345+ALL/DCN
                  E R90071+ALL/DCN
                  E R90015+ALL/DCN
                  E R90000+ALL/DCN
                  E R90083+ALL/DCN
                  E R12062+ALL/DCN
L68          38 S (R16377(L)M2095)/PLE
L69         219 S (R16377(L)M2391)/PLE
L70          26 S L66 AND (DEACETY? OR DE ACETY? OR NONACETY? OR NON ACETY?)
L71           3 S L66 AND ?PENTAMER?
L72           1 S L68,L69 AND L70,L71
L73           3 S L67,L72
L74          37 S L68 NOT L73
L75          25 S L70 NOT L73,L74
                  SEL DN AN 13 14 18 20 25
L76           5 S L75 AND E1-E10
L77           8 S L73,L76 AND L65-L76

     FILE 'WPIX' ENTERED AT 08:55:27 ON 10 OCT 2002

     FILE 'DPCI' ENTERED AT 08:55:42 ON 10 OCT 2002
                  E WO9903948/PN
L78           1 S E3

     FILE 'DPCI' ENTERED AT 08:56:28 ON 10 OCT 2002

     FILE 'WPIX' ENTERED AT 08:57:00 ON 10 OCT 2002
                  E EP998540/PN
L79           1 S E3
                  E EP765939/PN
L80           1 S E3
                  E GB1080248/PN
L81           1 S E3
                  E US3096293/PN
                  E US4186803/PN
L82           1 S E3
                  E US4218327/PN
```

```
L83           1 S E3
                E US4868293/PN
L84           1 S E3
L85           4 S L79-L84 NOT L77

     FILE 'WPIX' ENTERED AT 08:59:43 ON 10 OCT 2002

     FILE 'HCAPLUS' ENTERED AT 09:00:09 ON 10 OCT 2002
                E US3096293/PN
L86           1 S E3
L87           1 S L86 NOT L64
L88           0 S L87 AND L2-L64

     FILE 'HCAPLUS' ENTERED AT 09:00:55 ON 10 OCT 2002

     FILE 'TULSA' ENTERED AT 09:03:10 ON 10 OCT 2002
L89         994 S L1
L90        1051 S XANTHAN?(A)GUM OR XANTHAN?
L91        1051 S L89,L90
                E XANTHAN/CT
                E E3+ALL
L92         994 S E7,E8
L93        1051 S L91,L92
L94           9 S L93 AND (DEACET? OR NONACET? OR (DE OR NON)()ACET?)
                E DEACET/CT
                E ACET/CT

     FILE 'TULSA' ENTERED AT 09:05:45 ON 10 OCT 2002

     INDEX '1MOBILITY, 2MOBILITY, ADISALERTS, AEROSPACE, AGRICOLA, ALUMINIUM,
     ANABSTR, AQUASCI, AQUIRE, BABS, BIBLIODATA, BIOBUSINESS, BIOCOMMERCE,
     BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, BLLDB, CABA, CANCERLIT, CAOLD,
     CAPLUS, CASREACT, CBNB, CEABA-VTB, ...' ENTERED AT 09:08:24 ON 10 OCT 2002

     FILE 'CBNB, CEN' ENTERED AT 09:08:45 ON 10 OCT 2002
L95         151 S L1
L96         251 S XANTHAN?(A)GUM OR XANTHAN?
L97         251 S L96,L95
L98           0 S L97 AND (DEACET? OR NONACET? OR (DE OR NON)()ACET?)
L99           0 S L97 AND (DEACYL? OR NONACYL? OR (DE OR NON)()ACYL?)
L100          0 S L97 AND (PENTAMER? OR POLYPENTAMER?)
L101          6 S L97 AND ACET?
```